An Action Plan for Developing Sustainable Agricultural Input Supply Systems in Malawi

An International Center for Soil Fertility and Agricultural Development

An Action Plan for Developing Sustainable Agricultural Input Supply Systems in Malawi

Coordinated by

Malawi Agricultural Sector Investment Programme (MASIP)
Ministry of Agriculture and Irrigation (MOAI)
Government of Malawi (GOM)

Prepared by

IFDC—An International Center for Soil Fertility and Agricultural Development
Development Alternatives Incorporated (DAI)
Masdar Technology Limited (MTL)

Funded by

Department for International Development (DfID)
European Union (EU)
United States Agency for International Development (USAID)
The World Bank

Library of Congress Cataloging-in-Publication Data

An action plan for developing sustainable agricultural input supply systems in Malawi / coordinated by Malawi Agricultural Sector Investment Programme (MASIP), Ministry of Agriculture and Irrigation (MOAI), Government of Malawi (GOM) ; prepared by IFDC-an International Center for Soil Fertility and Agricultural Development, Development Alternatives Incorporated (DAI), Masdar Technology Limited (MTL).
p. cm.
Report prepared by B.L. Bumb, policy economist and team leader (IFDC) and others. Includes bibliographical references.
ISBN 0-88090-131-4
1. Agriculture--Economic aspects--Malawi. 2. Agricultural development projects--Malawi. 3. Agriculture and state--Malawi. I. Bumb, Balu II. Malawi Agricultural Sector Investment Programme. III. International Center for Soil Fertility and Agricultural Development. IV. Development Alternatives, Inc. V. Masdar Technology Limited.
HD2133.5.Z8 A25 2002
338.1'86897--dc21

2002154411

IFDC—An International Center for Soil Fertility and Agricultural Development
P.O. Box 2040
Muscle Shoals, AL 35662 (U.S.A.)

Telephone: +1 (256) 381-6600
Telefax: +1 (256) 381-7408
E-Mail: general@ifdc.org
Web Site: www.ifdc.org

IFDC publications are listed in *IFDC Publications*, General Publication IFDC–G-1; the publications catalog is free of charge.

An Action Plan for Developing Sustainable Agricultural Input Supply Systems in Malawi

Preface

During the 1990s, Malawi made considerable progress towards deregulation and liberalization of agricultural input markets (AIMs). Currently there are no restrictions on pricing or marketing of modern agricultural inputs (improved seeds, mineral fertilizers, and crop protection products [CPPs]), and private sector accounts for dominant shares of the input markets. Nevertheless, these markets are not operating as efficiently as expected when policy reforms were introduced, and farmers do not have easy access to these inputs and at affordable prices. Realizing the importance of these modern inputs in promoting food security and protecting the natural resource base, the Ministry of Agriculture and Irrigation (MOAI) decided to commission a study of the underlying causes of unfulfilled expectations.

Through the Malawi Agricultural Sector Investment Programme (MASIP) Secretariat, the MOAI requested IFDC—An International Center for Soil Fertility and Agricultural Development, Muscle Shoals, Alabama, U.S.A.; Development Alternatives Incorporated (DAI), Bethesda, Maryland, U.S.A.; and Masdar Technology Limited (MTL), Eversley Hampshire, UK, to conduct a study on agricultural input supply systems in Malawi. The study focused on developing an assessment of the prevailing input supply system and preparing an *Action Plan* for their sustainable development. The funding for the study was provided by the Department for International Development (DfID), European Union (EU), United States Agency for International Development (USAID), and the World Bank, Washington, DC.[1]

The study was divided into two phases. Phase I (February 28-March 31, 2000) involved an assessment of AIMs and other input delivery systems prevailing in Malawi. Phase II (April 27-May 15, 2000) focused on developing an *Action Plan* for sustainable input supply systems. The study team included the following members:

1. B. L. Bumb, Policy Economist and Team Leader (IFDC)
2. D. Baillie, Credit Specialist (MTL)
3. M. F. Beig, Marketing Specialist (IFDC)
4. R. Chapweteka, Inputs Economist (MOAI)
5. G. Dimithe, Production Economist (IFDC)
6. D. Gisselquist, Seed Specialist (DAI)
7. D. Kamchacha, Inputs Trader (Private Sector)
8. F. Msiska, Policy Economist (MOAI)

During Phase I, the study team visited with various stakeholders including donors, policymakers, nongovernmental organizations (NGOs), farmers, bankers, and private traders and investors. Field visits were made to Kasungu, Salima, Blantyre, Zomba, Nkhotakota, Mzuzu, Rumphi, Karonga, Chitipa, and several other towns and villages. After the first week, the study team was divided into three groups, namely, finance and policy, seed and pesticides, and fertilizers, to reach out to as many stakeholders as possible. The study team greatly appreciates the assistance the MOAI Headquarters and various agricultural development divisions (ADDs) provided and the cooperation received from different stakeholders. Similarly, the team gratefully acknowledges the logistic support the MASIP Secretariat and the Rural Economic Policy Centre provided.

1. The views and interpretations in this document are those of the study team and should not be attributed to the funding or sponsoring agencies.

Preliminary findings of the study were presented at a meeting in the MOAI on March 28, 2000. On May 10, 2000, a national workshop was organized to review the draft *Action Plan*. Recommendations and suggestions made at the workshop are incorporated in the report.

The report recommends a holistic approach to develop sustainable input supply systems in Malawi. Such an approach should concurrently focus on policy reforms, human capital formation, technology transfer, improved financial services, market information system (MIS) development, and regulatory frameworks. Isolated emphasis on one or two of these components is unlikely to produce optimum results for supplying inputs in a cost-effective and efficient manner. Nevertheless, actual implementation of various components may require appropriate sequencing and phasing. The report also recommends that input support targeting the poorest farmers be implemented through market-friendly measures.

USAID/Malawi has funded a project called the AIMs (Agricultural Input Markets) Development Project that implements some of the components of the *Action Plan*. The Government of Malawi (GOM) should approach other donors to consider funding other components of the *Action Plan*.

Contents

Tables

Action Plan Matrices

Maps and Figures

Abbreviations and Acronyms

ADD	Agricultural Development Division
ADMARC	Agricultural Development and Marketing Corporation
AFSTA	African Seed Trade Association
AHL	Auction Holdings Ltd.
AIBDF	Agricultural Inputs Business Development Fund
AICF	Agricultural Inputs Credit Fund
AIIF	Agricultural Input Import Fund
AIMs	Agricultural Input Markets
APIP	Agricultural Productivity Investment Program
APRU	Agricultural Policy Research Unit
ARET	Agricultural Research and Extension Trust
AS	Ammonium Sulfate
ATA	Agribusiness Trade Associations
ATC	Agricultural Trading Company
BT	Biotechnology
CAN	Calcium Ammonium Nitrate
CBM	Commercial Bank of Malawi Ltd.
CPP	Crop Protection Product
DAI	Development Alternatives Incorporated
DAP	Diammonium Phosphate
DEMAT	Development of Malawian Enterprises Trust
DFI	Development Financial Institutions
DfID	Department for International Development
EPA	Extension Planning Area
EU	European Union
FA	field assistant(s)
FAO	Food and Agricultural Organization
FBM	Finance Bank Malawi Ltd.
FCM	Finance Corporation of Malawi Ltd.
FMB	First Merchant Bank Ltd.
f.o.b.	free-on-board
FSP	Food Security Project
FSU	Former Soviet Union
GCPF	Global Crop Protection Federation
GMO	Gene Modified Organism
GOM	Government of Malawi
ha	hectare(s)
ICRISAT	International Center for Research in Sub-Arid Tropics
IFDC	An International Center for Soil Fertility and Agricultural Development
IFS	Indebank Financial Services Ltd.
IITA	International Institute for Tropical Agriculture
INDEBANK	Investment and Development Bank of Malawi
INDEFUND	Investment and Development Fund of Malawi
IPM	Integrated Pest Management
ISTA	International Seed Trade Association

kg	kilogram(s)
km	kilometer(s)
L	liter(s)
KR-II	Kennedy Round II
LC	Letter of Credit
LIB	Loita Investment Bank Ltd.
LIBOR	London Inter-Bank Offered Rate
LRR	Liquidity Reserve Requirement
MASIP	Malawi Agricultural Sector Investment Programme
MBS	Malawi Bureau of Standards
MIS	Market Information System
MK	Malawian Kwacha
MOAI	Ministry of Agriculture and Irrigation
MOF	Ministry of Finance
MOH	Ministry of Health
MOP	Monoammonium Phosphate
MRFC	Malawi Rural Finance Corporation
MSB	Malawi Savings Bank
mt	metric ton(s)
MTL	Masdar Technology Limited
MUSCCO	Malawi Union of Savings and Credit Co-Operatives Limited
M-Z-M	Malawi-Zambia-Mozambique
NASFAM	National Association of Smallholder Farmers of Malawi
NBM	National Bank of Malawi
NGO	Nongovernmental Organization
NHML	Norsk Hydro Malawi Limited
NSCM	National Seed Company of Malawi
OPV	Open-Pollinated Variety
P	Phosphorus
PCB	Pesticides Control Board
PR	Phosphate Rock
PS	Principal Secretary
PSAM	Pesticides Suppliers Association of Malawi
PVP	Plant Variety Protection
RBM	Reserve Bank of Malawi
RDP	Rural Development Project
RESAL	Réseau Européan de Sécurité Alimentaire (European Food Security Network)
SACA	Smallholders' Agricultural Credit Administration
SACCO	Savings and Credit Cooperative
SADC	Southern African Development Community
SEARCH	Southern and Eastern Africa Regulatory Committee on Harmonization
SEDOM	Small Enterprise Development Organization of Malawi
SEEDCO	Seed Company of Zimbabwe
SFFRFM	Smallholder Farmer Fertilizer Revolving Fund of Malawi
SG 2000	Sasakawa-Global 2000
SME	Small and Medium Enterprise
SOE	State-Owned Enterprise

SPS	Starter Pack Scheme
SSP	Single Superphosphate
TAMA	Tobacco Association of Malawi
TCC	Tobacco Control Commission
TF	Task Force
TSP	Triple Superphosphate
UK	United Kingdom
U.S.	United States
USA	United States of America
USAID	United States Agency for International Development
VCR	Value:Cost Ratio

An Action Plan for Developing Sustainable Agricultural Input Supply Systems in Malawi

Executive Summary

I. Introduction

Malawi is a landlocked rural economy dominated by agriculture; but the productivity of the agricultural sector is so low that nearly one-half of the population suffers from chronic food insecurity even in normal years. Approximately 70%-80% of the population is estimated to earn less than US $0.50/day. Under such conditions of poverty, food security at both the household and national levels can be ensured only through a two-pronged approach of market-based measures and well-targeted safety net improvements. In both approaches, the major focus should be on enhancing the productivity of land and labor through the application of science and technology embodied in improved seeds, mineral fertilizers, crop protection products (CPPs), and other appropriate agronomic and soil fertility-improving practices.

In addition to ensuring food security, Malawi has to protect and sustain its most important natural resource, namely, the soils that feed the nation. Currently, harvested crops remove about 160,000 mt of nutrients per year while 70,000 mt of nutrients per year are replaced in the form of mineral fertilizers. Organic sources may supply another 15,000-20,000 mt of nutrients per year. Thus, there is a net loss of nutrients from the soils. This mining of nutrients must be reversed, so that the soils can be preserved for future generations. In fulfilling both socioeconomic goals, improved seeds, fertilizers, and CPPs have a critical role to play and should be supplied in a cost-effective and timely manner in rural areas.

II. An Assessment of Agricultural Input Supply Systems

Malawi has made considerable progress towards deregulation and liberalization of the agricultural input supply systems, and the private sector has played a dominant role in supplying various inputs in recent years. Nevertheless, agricultural input markets (AIMs) are not operating efficiently and farmers do not have easy access to inputs and at affordable prices. Several factors continue to constrain the development of efficient AIMs. These factors can be divided into three broad groups, namely, macropolicy issues, market development-related issues, and technical issues.

In the macropolicy group, devaluation of the Malawian Kwacha (MK), limited availability of foreign exchange, high interest rate, poor rural roads, and physical insecurity in rural areas constrain the development of input markets. The devaluation of the domestic currency not only increases the prices of imported seeds, fertilizers, and CPPs, but it also discourages investments in business development due to associated risks. Limited availability of foreign exchange constrains the import of inputs. Poor infrastructure in rural areas makes the transportation of goods and services difficult and costly and limits the supply of much-needed inputs. Physical insecurity compounds the problems associated with devaluation, high interest rate, and poor rural roads. All these factors have contributed to the concentration of suppliers in urban and peri-urban areas and are forcing farmers to travel 10-50 km to purchase inputs.

The market development-related issues consist of policy uncertainty, inadequate human capital and market information, lack of affordable finance, and poor implementation of regulatory frameworks. Policy uncertainty results from well-intentioned donor-financed and government-supported programs for supplying inputs. These programs include Agricultural Productivity Investment Program (APIP), Starter Pack Scheme (SPS), input grants under Kennedy Round II (KR-II), and the Smallholder Farmer Fertilizer Revolving Fund of Malawi (SFFRFM). By creating uncertainty in the marketplace, these programs tend to discourage private sector investment in input business. Inadequate human capital (marketing and business skills) and market information restrict the supply of products in the marketplace and result in high prices. There is generally a lack of input dealers in the rural areas. The seed and fertilizer markets are largely concentrated in towns and cities and are served by a limited number of enterprises. High interest rates and stringent collateral requirements coupled with near absence of financial service providers in rural areas make the availability of finance for business development nearly impossible. Although the country has laws on seed and fertilizers, the implementation of these laws has been far from satisfactory. The regulatory agencies are also constrained by the lack of human and financial resources needed for implementing laws and regulations.

III. An Action Plan for Developing Sustainable Input Supply Systems

In developing the *Action Plan*, the team assessed various options available for supplying agricultural inputs and concluded that the free market systems should be used to supply inputs to the farmers because these are relatively more efficient and sustainable and do not strain the fiscal resources of the country. Nevertheless, the team recognized the fact that although AIMs have been liberalized in Malawi, they are not operating efficiently. To develop sustainable supply systems, the liberalized markets must be strengthened by undertaking activities in the areas of policy reform, human capital formation, improved financial services, market information systems (MIS), and regulatory frameworks (laws related to "truth-in-labeling"). The team recommends that these activities should be undertaken in a holistic manner so that the synergies of various activities could be captured.

The team also assessed the potential of the private sector in undertaking marketing activities in a competitive market environment. The team found that the private sector has latent potential to shoulder the responsibility of marketing of agricultural inputs in an efficient and sustainable manner. However, for this potential to be realized, constraints affecting their activities need to be removed. In developing the *Action Plan*, special attention was paid to the alleviation of these constraints.

The main activities proposed in the *Action Plan* are identified in the Action Plan Matrix 1 and are briefly summarized below.

Policy Reform

Overall, the macro policy environment should be conducive to the market development process. Macroeconomic stability and sufficient supply of foreign exchange are essential. It is estimated that Malawi will need approximately US $65-$80 million/year to import the necessary inputs during the 2001-2005 period. The Government of Malawi (GOM) and donors should ensure through the balance-of-payment support that these amounts are available in the market.

As explained earlier, various well-intentioned donor-financed programs and government-supported activities contribute to creating uncertainty for the private sector involvement in input marketing. Both APIP and SPS are good programs because they create additional purchasing power with resource-poor farmers. However, their implementation mechanisms need improvement. Both programs should be implemented through voucher-based market mechanisms replacing donors and the government international tendering. The GOM should also use

vouchers to distribute seeds for safety net purposes. Agricultural inputs received under the Japanese KR-II program should be integrated with commercial imports through transparent auctioning in the country. Counterpart funds received from such auctions should be used to establish a credit guarantee fund (explained below) for input dealers.

The Agricultural Development and Marketing Corporation (ADMARC) had traditionally been a primary supplier of inputs in the country. However, after liberalization, its market share decreased substantially. In 1999, ADMARC accounted for less than 12% of the fertilizer and 1% of the hybrid maize seed markets. Nevertheless, ADMARC continues to enjoy certain advantages (e.g., free storage and transportation fleet) in the marketplace. To provide equal opportunity to all market participants, ADMARC should sell inputs at full cost and remove all implicit subsidies.

SFFRFM has managed fertilizer buffer stocks in the past. Currently, there are no buffer stocks in the country. The team carefully assessed the needs for maintaining buffer stocks and concluded that there is no need to maintain such stocks. The private sector can import the necessary inputs on short notice provided they have access to finance and market information. Not only will the buffer stocks block scarce resources but also they will introduce uncertainty in the private sector planning of input supply. Because there is no need to maintain the buffer stocks, SFFRFM should be privatized.

Human Capital Formation

Skills, knowledge, and information needed to make input markets efficient are inadequate at all levels of the marketing chain. Importers do not have adequate knowledge about the conditions prevailing in the global input markets; wholesalers and retailers lack the necessary skills for enterprise management; and most importantly, there are few independent dealers involved in marketing inputs in rural areas. Even the bankers are not fully equipped to effectively play their role in financing the import and marketing of inputs. The Ministry of Agriculture and Irrigation (MOAI) and the Malawi Bureau of Standards (MBS) do not have adequate skilled manpower to implement the enacted laws and regulations and to monitor the quality and quantity of products for "truth-in-labeling." Developing the human capital necessary for making input markets perform efficiently constitutes the core of the activities recommended in this *Action Plan*. This will be accomplished by performing the following activities:

1. Training programs for dealers (wholesalers and retailers), importers, and bankers.
2. Technical assistance in enterprise development to newly trained dealers.
3. Study tours for dealers, importers, and bankers.
4. Policy workshop and study tours for policymakers.

To make dealers a dynamic force in the economy, various associations of input traders will be encouraged. Training and technical assistance for associations will be essential. In addition to developing human resources for competitive markets, training and technical assistance will be needed for building technical capacity in the seed sector—training for seed growers, capacity for inspection and quality control, and enterprise development.

Improved Financial Services

Finance is the lifeblood of any business activity. Without adequate access and availability of affordable finance, competitive markets cannot function efficiently. Currently, difficulties in obtaining adequate foreign exchange to cover procurements from overseas estimated at about US $65 million/year (and likely to increase to US $80 million/year by 2005) are constraining major and new entrant importers alike. If export earnings and balance-of-payment support continue at levels sufficient to ensure the availability of foreign exchange for use in procuring annual requirements, further liberalization of the market would generate significant benefits to the economy. Within the importation and internal market, vertical integration of sales and services by the principal importers and stringent security/collateral requirements imposed on all borrowers have prevented the establishment

of an intermediate cadre of local dealers and traders in seeds, fertilizers, and CPPs. To foster greater competition among importers and assist with foreign exchange financing, the team recommends that an Agricultural Inputs Import Fund (AIIF) be established to supplement available foreign exchange used in raising Letters of Credit (LC) with foreign banks. The Fund will provide guaranteed foreign exchange support up to a maximum of US $1.0 million per importer per year. In addition, the team recommends that an MK 100 million Agricultural Inputs Business Development Fund (AIBDF) be established as a loan guarantee fund to cover commercial banks lending to local agricultural inputs dealers/traders. The provision of specialist training for the senior credit officers of participating banks and targeted importers and dealers would be a prerequisite for the use of both funds.

Market Information Systems

Information is crucial for the functioning of the market. Dealers and importers need information about local, regional, and global markets. Because every stakeholder will need the information about prices, stocks, and availability of inputs in various markets, an MIS should be created and operated by the MOAI or by the Agricultural Policy Research Unit (APRU) under a contract from the MOAI. Adequate collection and analysis of appropriate market data and information, and their dissemination through media and appropriate publications should be done regularly.

Implementation of the Regulatory Frameworks

Malawi has an enacted fertilizer, seed, and pesticide law, and there is a draft bill awaiting enactment to strengthen the pesticide component of this law. But the implementation of the law currently in effect and its supporting regulations remain weak due to shortage of manpower and resources. To safeguard the interests of farmers and to protect the environment and human health, proper implementation of these laws is essential. Training and technical assistance activities will be needed to strengthen the implementation of laws and to ensure "truth-in-labeling."

Technology Transfer Activities

Although farmers in Malawi are aware of modern inputs such as improved seeds and fertilizers, they lack sound knowledge of appropriate technologies. Because "seeing is believing" works better than any other mechanism, large-scale demonstrations on farmers' fields for various crops are planned in the *Action Plan*. These demonstrations will teach farmers about proper and environmentally sound use of fertilizers, seed, CPPs, and soil-fertility enhancing practices. These demonstrations could also be used to promote high-analysis fertilizers. To aid farmers in estimating fertilizer requirements properly, soil-testing facilities should be developed. This activity could be implemented in close collaboration with Sasakawa-Global 2000 (SG 2000) and other nongovernmental organizations (NGOs).

Other Input-Specific Issues

Seed—Specific efforts are required to encourage entry of new small and medium seed enterprises (SMEs) to import and/or process seeds from domestic production, with particular attention to secondary field crops such as pulses, rice, potatoes, cotton, beans, oilseeds, and others. For many of these crops, seeds are non-hybrid, so that marketing margins are going to be small and most commercial seed may be sold at 2-2.5 times the grain price. Local SMEs with low overheads could be competitive in producing and marketing such seeds.

Over the last decade, government and donors have supported local seed production through small farmers and estates, but seed from these projects have not been sold by retail outlets. Instead, government projects and NGOs have bought and distributed most of this seed outside commercial channels. Hence, despite many good efforts, seed production is not linked to markets and is therefore not sustainable. Efforts should be made to help potential

entrepreneurs (scientists, seed farmers, seed growers' association, and others) to establish viable seed enterprises—buying seed from farmers, packaging it with a brand name, and distributing or selling it to retail outlets for farmers to buy. Currently, the United States Agency for International Development (USAID), with Iowa State University and Purdue University, is preparing a project to assist the small seed growers. There is room for several projects, just as there is room for dozens of new seed companies in the Malawi (and regional) seed market.

Fertilizers—Some researchers have concluded that farmers do not need to apply phosphate fertilizers because the soils in Malawi are rich in phosphorus (P). However, limited soil tests have indicated that P levels are generally low in the soils. Hence, if farmers apply a small quantity of phosphate fertilizers, it is possible that the P is absorbed by the soil. MOAI should fund research on this crucial aspect of P dynamics, so that the soils of Malawi do not get completely depleted of P.

Malawi has abundant phosphate rock (PR) resources. Because these PRs are of low reactivity, they cannot be used for direct application. However, PR can be compacted with single superphosphate (SSP) or triple superphosphate (TSP) for use in farmers' fields. Research on the agronomic response of crops to compacted PR should receive priority in future work.

Malawi's heavy dependence on tobacco for export earning is nonstrategic. To promote diversification in export crops, GOM should consider promoting the use of diammonium phosphate (DAP) for basal dose and urea for topdressing for maize cultivation followed by groundnuts or pulses (both of these commodities seem to have good export potential). These crops can use residual P from basal application of DAP and fix their nitrogen requirements from the atmosphere. The country can benefit from additional export earnings at no additional nitrogen cost. In sulfur-deficit areas, supplementing the supply of sulfur should be encouraged.

Crop Protection Products—With the uncontrolled status of the Malawi CPP market, it has been estimated that the country has over 30,633 L and 2.478 million kg of outdated pesticides in stock. Furthermore, several unapproved compounds, such as Dieldrin, are sold in the market and other products are inappropriately used on food crops or in various cases of suicides. Consequently, a safe and environmentally sound disposal of the obsolete stock of pesticides and enforcement of laws and regulations should receive top priority for Malawi. Similarly, proper monitoring and education are essential to avoid harm to human health and the environment. Additionally, efforts should be made to (1) promote the use of less toxic CPPs; (2) intensify research and extension on bio-control and integrated pest management (IPM); (3) develop easier, cheaper, and low-risk regulations for biopesticides; and (4) improve residue testing on food products.

IV. Regional Integration

While it is essential that market development activities be promoted in Malawi, input market development activities should be considered for the subregion consisting of the M-Z-M Triangle (Malawi-Zambia-Mozambique) and Zimbabwe to derive larger benefits from economies of scale and harmonization of policies. For example, one pre-shipment inspection of imported inputs, e.g., fertilizers, at the port of entry should be sufficient for input movements in these countries. Such a rule can save considerable costs incurred in pre-shipment inspection for each country and preshipment inspection of inputs involved in intraregional intercountry trade. Likewise, harmonization of policies for seeds and CPPs can contribute to efficiency in input marketing. It is recommended that a comprehensive study of policies and rules and regulations prevailing in these countries be undertaken to develop an *Action Plan* for promoting regional input markets.

V. Potential Benefits of the Action Plan

The implementation of the *Action Plan* will generate several socioeconomic benefits for Malawi. It will promote food security and environmental protection by lowering the prices of inputs, making inputs easily accessible to farmers in rural areas, and improving access to new production technologies. The contribution of the *Action Plan* to foreign exchange earnings will also be significant through crop diversification and increased food production.

VI. Implementation Arrangements

In implementing the *Action Plan*, care must be taken to preserve the holistic nature of the proposed measures. It is recommended that core activities dealing with policy reform, dealer development, and financial services should be implemented as a project. Other activities could be implemented as subproject activities.

To facilitate the implementation of the *Action Plan*, a Task Force (TF) consisting of stakeholders from the private sector, donor community and the government should be created. The TF should have direct access to the MOAI and the donor committees on agriculture and food security. The Malawi Agricultural Sector Investment Programme (MASIP) should coordinate TF's activities and assist in making necessary arrangements for stakeholders' meetings.

An Action Plan for Developing Sustainable Agricultural Input Supply Systems in Malawi

I. Introduction

Malawi is a landlocked rural economy dominated by agriculture, but the productivity of the agricultural sector is so low that nearly one-half of the population suffers from chronic food insecurity even in normal years. Approximately 70%-80% of the population is estimated to earn less than US $0.50/day. Under such conditions of poverty, food security at both the household and national levels can only be ensured through a two-pronged approach of market-based measures and well-targeted safety net improvements. In both approaches, the primary focus should be on enhancing the productivity of land and labor through the application of science and technology embodied in improved seeds, mineral fertilizers, crop protection products (CPPs), and other appropriate agronomic and soil fertility-improving practices.

By 2020 Malawi's population is projected to reach 15.2 million. To feed that population at an adequate nutritional level, Malawi will have to produce a minimum of 3.8 million mt of grains. This requires the doubling of grain production during the 2000-2020 period.

In addition to ensuring food security, Malawi has to protect and sustain its most important natural resource, namely the soils that feed the nation. Currently, harvested crops remove about 160,000 mt of nutrients per year while 70,000 mt of nutrients per year are replaced in the form of mineral fertilizers. Organic sources may supply another 15,000-20,000 mt of nutrients per year. Thus, there is a net loss of nutrients from the soils. This mining of nutrients must be reversed so that the soils can be preserved for future generations.

A greater intensification of the agricultural production is therefore indispensable if Malawi is to meet the imperative of improving food security, while protecting the environment and being competitive in the regional and global markets of agricultural commodities. During the 1980s, the growth of Malawi agricultural production (1.9%) fell significantly below that of population (4.2%). This constituted a sharp deterioration in performance compared to the 1970s when agricultural production (4.7%) outpaced population growth rate (3.1%). While the performance of the agriculture sector improved in the 1990s, much of the growth occurred in the smallholder sector[1] through soil nutrient mining and expansion of area cultivated.[2]

Currently, population growth and density have put tremendous pressure on land, particularly in the Southern Region[3] (Map 1). Approximately 70% of the households cultivate less than 1 ha (Table 1). Under conditions of limited opportunities for growth based on expansion into good agricultural lands with limited unwarranted deforestation, increasing labor and land productivity become essential. The potential for significant increases in productivity in Malawi is high because the current level use of modern inputs is very low. For example, with the exception of maize, a sustained adoption of improved varieties by farmers is very limited, and Malawi consumed a modest 43 kg of nutrients per hectare of arable land in 1997/98.[4]

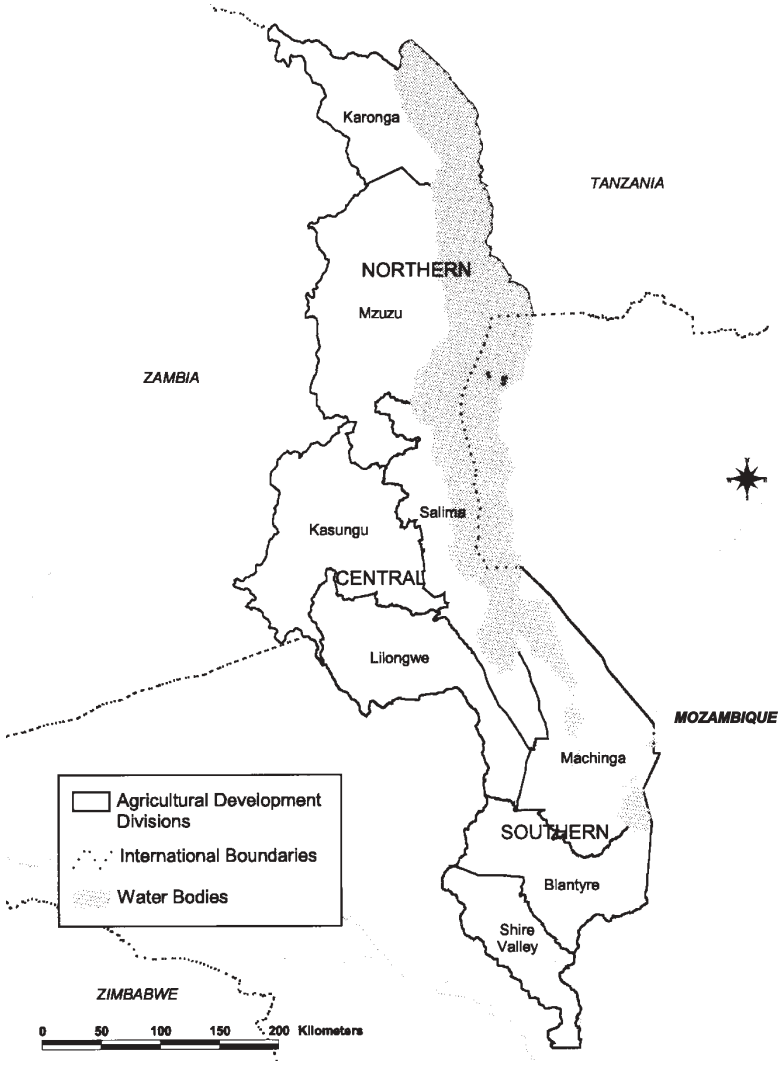
A greater adoption of quality seed of improved varieties, fertilizers, and CPPs requires efficient markets supported by appropriate government policies and facilitating institutions. In the past, government or government-owned parastatals directly imported, distributed, and set prices for most agricultural inputs. To the degree that private firms participated in input supply, their activities were controlled or the firms were limited to specific segments of

[1] Jaffee [1997] reports growth rates of 1.8% for the smallholder agricultural sector in 1980-87, 0.4% in 1987-93, and 7.2% in 1993-96. This substantial improvement is a sharp contrast from the performance of the estate sector (4.1% in 1980-87, 8.0% in 1987-93 and 0.3% in 1993-96).

[2] A significant share of the growth in smallholder production resulted from increases in land area through (a) crop diversification away from maize into primarily flue-cured and burley tobacco, roots, tubers, and legumes; and (b) land conversion in the estate sector from traditional land to smaller leasehold cultivated by smallholder farmers.

[3] The Southern Region includes Machinga, Blantyre, and Shire Valley; Karonga and Mzuzu constitute the Northern Region; and Kasungu, Salima, and Lilongwe the Central Region.

[4] This was a little less than that in South Africa (47.8 kg/ha), and Zimbabwe (56.4 kg/ha), but far more than that in Bangladesh (2.0 kg/ha) and Indonesia (11.1 kg/ha).



Map 1. Malawi Agricultural Development Divisions.

Table 1. Approximate Distribution of Income and Average Land Holding

Adult Equivalent	Household Size	Estimated 1998 Income	Average Landholding	
(Income Deciles)		(MK/capita)	(ha/HH)	(ha/capita)
1	5.4	101	0.25	0.05
2	5.5	246	0.46	0.08
3	5.2	396	0.55	0.11
4	5.2	570	0.65	0.13
5	5.2	773	0.74	0.14
6	5.1	1,029	0.81	0.16
7	4.9	1,368	0.91	0.19
8	4.9	1,880	1.07	0.21
9	4.5	2,779	1.12	0.24
10	4.2	5,930	1.55	0.37
Average	5.0	1,507	0.79	0.16

Source: World Bank: Malawi–A Safety Net Strategy for the Poorest. Draft, December 1999.

the input market. It was later recognized that the government-controlled input supply system was neither efficient nor sustainable. Though private firms now supply a large proportion of agricultural inputs,[5] their high cost and unavailability in rural areas continue to be a concern. Typically, however, well-functioning input markets lead to the timely availability of appropriate and quality inputs at affordable prices. In addition, they increase farmers' choice of products, and eventually lead to improvements in farmers' knowledge and use of the inputs as traders develop their clientele.

II. An Assessment of the Agricultural Inputs Supply Systems in Malawi

The assessment of agricultural input supply systems reveals that Malawi has made considerable progress towards deregulation and liberalization of the agricultural input supply systems, and the private sector has played a dominant role in supplying various inputs in recent years. Nevertheless, agricultural input markets (AIMs) are not operating efficiently and farmers do not have easy access to inputs and at affordable prices. Several factors continue to constrain the development of efficient AIMs. Broadly, these factors can be divided into two groups, namely, policy issues and market development-related issues. This section provides a summary of

[5]For example, Chakravarti [1997] reports that the fertilizer market share of the private sector increased from 18% in 1994/95 to 49% in 1995/96 and 70% in 1996/97. Today, the private sector supplies about 75% of the total fertilizer used in Malawi.

the assessment findings. More details are reported in the background report.[6]

II.1. Policy Issues

Policy issues impacting AIMs can be divided into two groups: macropolicy issues and uncertainty resulting from various well-intentioned donor and government input distribution programs.

Macropolicy Issues—Under the macropolicy group, devaluation of currency, inadequate supply of foreign exchange, high interest rates, poor rural roads, and physical insecurity are critical issues. The 1998 devaluation of Kwacha adversely affected both input use and supply. Fertilizer prices increased significantly and discouraged fertilizer use. The uncertainty introduced by the devaluation of the value of currency also affected investment in input supply. It is essential that the value of the currency be stabilized, so that input imports can be planned without hedging for potential risks. If the value of Kwacha continues to depreciate, then input use and supply may fall precipitously, as happened in Ghana and the former Soviet Union (FSU) (Figures 1 and 2). In contrast to Bangladesh and China, both Ghana and FSU have experienced significant and continuous erosion of the value of domestic currencies during the reform period.

In addition to devaluation, the availability of foreign exchange to import inputs, especially fertilizers, is a constraint because Malawi has chronic deficits in its balance-of-payments account ($200-$300 million/year). Ensuring that adequate foreign exchange is available in the market each year for use in purchasing annual agricultural input requirements is an essential prerequisite to both the improvement of food security and the production of export crops.

High interest rates of 50%-60%/year also discourage input use and supply. Purchasing inputs on loans costing 50%-60%/year requires a re-

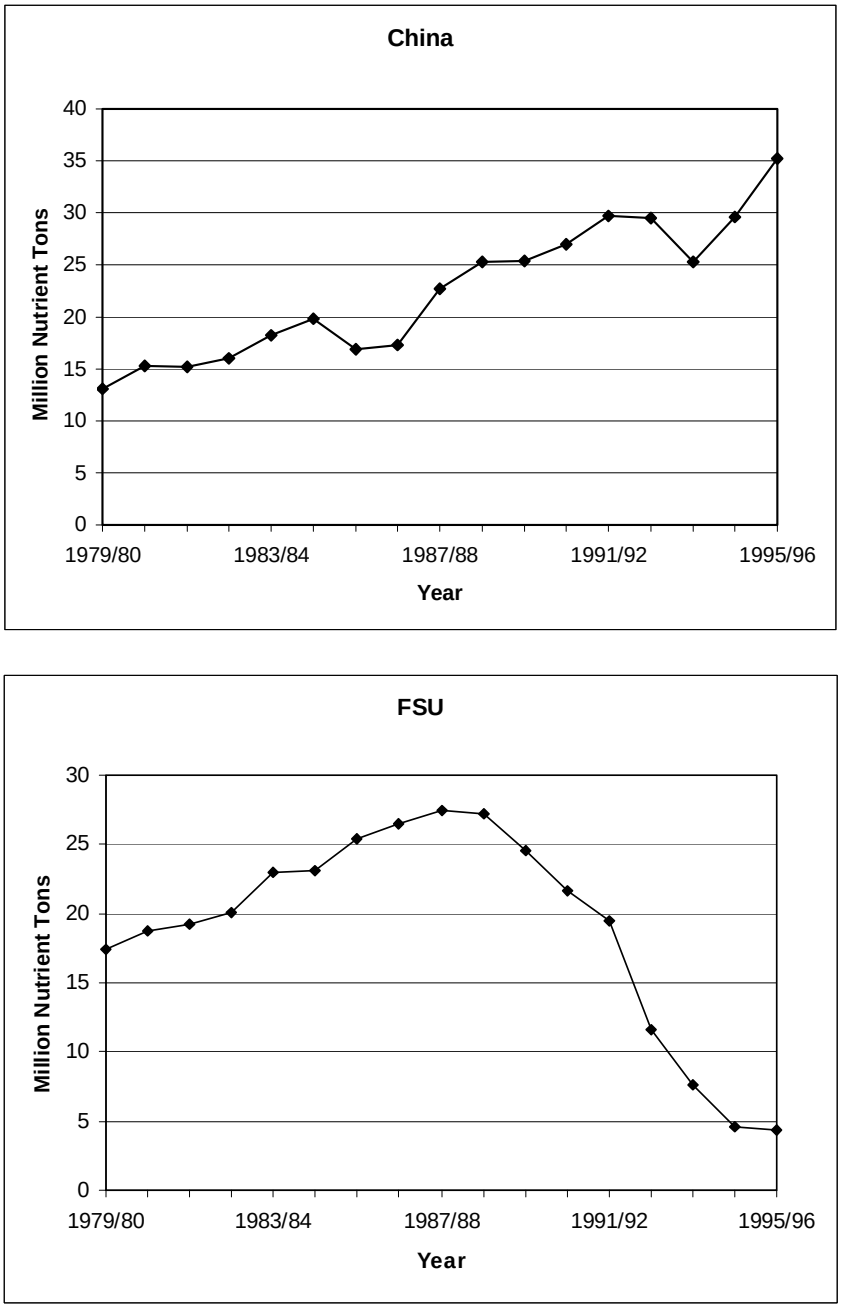


Figure 1. Fertilizer Use During Economic Reforms: China and the Former Soviet Union, 1979/80 – 1995/96.

[6]IFDC/DAI/MTL. 2000. "Developing Sustainable Agricultural Input Supply Systems in Malawi: Background Information to the Action Plan." IFDC Internal Document.

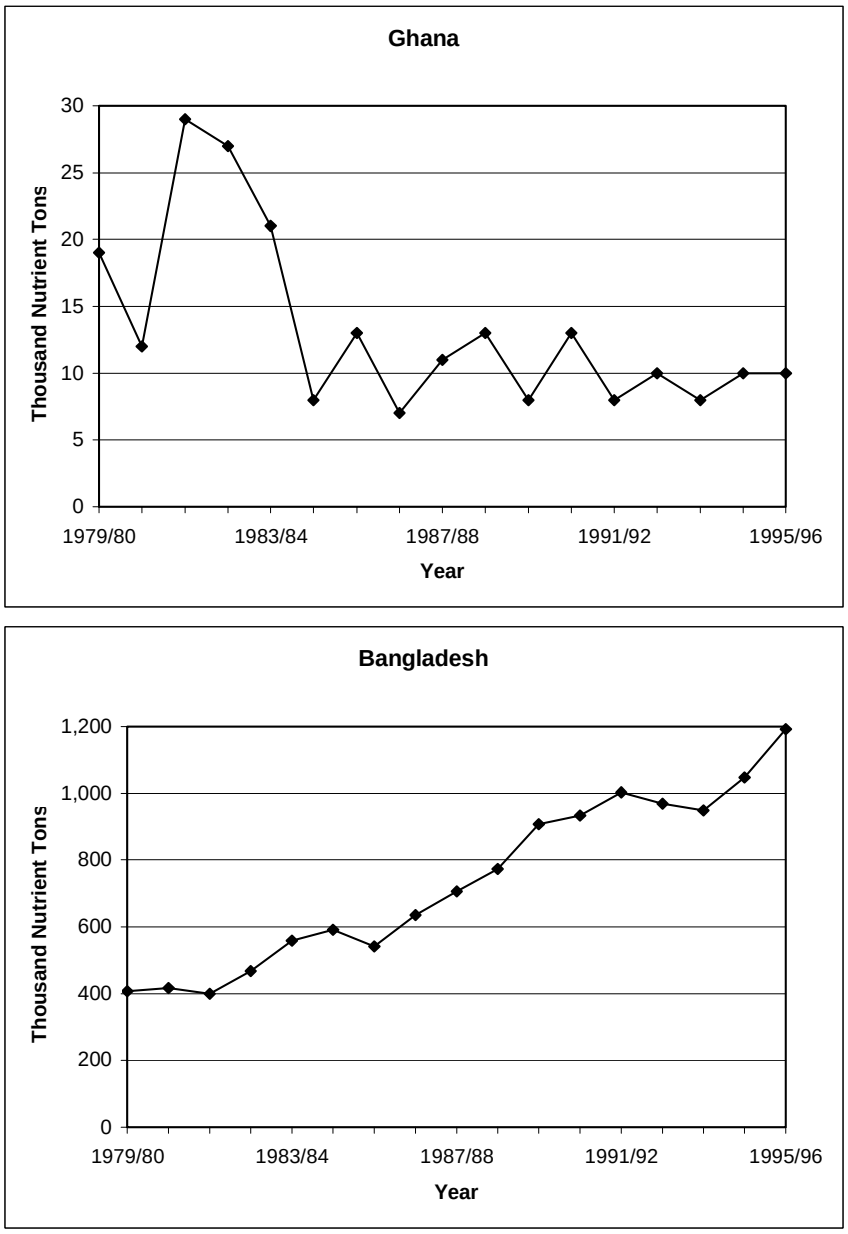


Figure 2. Fertilizer Use During Policy Reforms: Bangladesh and Ghana, 1979/80 – 1995/96.

turn of over 60% in one cropping season for this investment to be profitable. There are few activities in the crop production sector that can yield such high returns. Consequently, every reasonable effort should be made by the Government of Malawi (GOM) to reduce interest rates to affordable levels.

Poor road networks in rural areas not only add to the cost of supplying inputs but also discourage development of input supply systems and isolate rural areas from the rest of the economy. For example, because of extremely poor road conditions (impassable in the rainy season) between Karonga and Chitipa, transporters charge very high rates for moving inputs between these two towns. Physical insecurity and armed robberies of banks and stores further discourage the development of input supply networks in rural areas.

Policy-Induced Uncertainty and Distortions—In addition to macropolicy issues that adversely affect the development of input markets, the uncertainty resulting from well-intentioned donor and government programs also discourages investment in input markets. Under the Agricultural Productivity Investment Program (APIP) and Starter Pack Scheme (SPS), donors and the government procure inputs through international tendering. Such tendering introduces an element of uncertainty by risking the investment made in inputs supply if nationals fail to win the tender.

Similarly, inputs received under the Kennedy Round II (KR-II) from Japan are sold by state-owned enterprise (SOE) (Small Farmers Fertilizer Revolving Fund of Malawi [SFFRFM]) at two-thirds of the free-on-board (f.o.b.) price in the country of origin. Such arrangements introduce an implicit subsidy of 30%-40% with which the private sector dealers cannot compete. The KR-II input supplies help the country in reducing foreign exchange requirements for imports of inputs, but their current management is not compatible with competitive markets. These programs were designed when SOEs used to have a monopoly in input distribution and input prices were highly subsidized. Because they no longer have a monopoly in input distribution, there is

a need to develop mechanisms to integrate KR-II imports with commercial imports. Similarly, inputs distributed by the SFFRFM and Agricultural Development and Marketing Corporation (ADMARC) should be commercialized, as explained in Section II.4.

Market Development Issues— The market development-related issues consist of policy-induced uncertainty and distortions, inadequate human capital and market information, lack of affordable finance, and poor implementation of regulatory frameworks. As explained earlier, uncertainty and price distortions result from well-intentioned donor-financed and government-supported programs for supplying inputs. Inadequate human capital (marketing and business skills) and market information with the enterprises involved in input supply restrict the supply of products in the marketplace and result in high prices. There is generally a lack of input dealers in the rural areas. The seed and fertilizer markets are largely concentrated in towns and cities and are served by a limited number of enterprises. High interest rates and stringent collateral requirements coupled with near absence of financial service providers in rural areas make the availability of finance for business development nearly impossible. Although the country has enacted laws on seed and fertilizers, the implementation of these laws has been far from satisfactory. The regulatory agencies are also constrained by the lack of human and financial resources needed for implementing laws and regulations. Sections II.2 and II.5 provide further details on these and other technical issues related to financial services and seed, fertilizer, and CPP markets.

II.2. Financial Support Services

Financial Institutions—The institutional landscape of the Malawi financial sector dealing with agricultural inputs has expanded tremendously over the years. Prior to the startup of the liberalization process, principally two main commercial banks served the agricultural inputs trading sector: the National Bank of Malawi (NBM), and the Commercial Bank of Malawi Ltd. (CBM). In addition, the merchant banking arms of the Finance Corporation of Malawi Ltd. (FCM) and Indebank Financial Services Ltd. (IFS) provided limited credits for agricultural inputs trade. The commercial banks also financed agricultural production in the estate sector, while the GOM Smallholders' Agricultural Credit Administration (SACA) serviced smallholders.

By April 2000 the financial services had expanded to include seven commercial and merchant banks (NBM, CBM, FCM, IFS, First Merchant Bank Ltd. [FMB], Finance Bank Malawi Ltd. [FBM], and Loita Investment Bank Ltd. [LIB]); four development financial institutions (DFIs) (the Investment and Development Bank of Malawi [INDEBANK], the Investment and Development Fund of Malawi [INDEFUND], the Small Enterprise Development Organization of Malawi [SEDOM], and the Malawi Rural Finance Corporation [MRFC], which took over from SACA in1994); and two savings institutions (Malawi Savings Bank [MSB] and the Malawi Union of Savings and Credit Co-Operatives Limited [MUSCCO]).

Besides the abovementioned institutions, the GOM operates one non-financial service, the Development of Malawian Enterprises Trust (DEMAT), targeted principally at assisting micro- and small enterprise development. In addition, in 1997 the European Union (EU) in conjunction with GOM established a new national credit project (APIP) to provide credit-in-kind as seed and fertilizer for smallholder food crop production principally in support of efforts to improve national and household food security. In 1998 this program was complemented by the establishment of the private sector/GOM Agricultural Inputs Credit Fund (AICF) scheme, which began providing specialist credit-in-kind services to the tobacco sector. Both schemes are in the process of being redesigned to enable them to operate as fully sustainable programs.

A significant GOM/donor/private sector initiative is currently underway to regulate, develop, and expand the micro-finance subsector on a sustainable basis. A Microfinance Task Force has been set up and has already established the necessary legal environment and regulatory framework for practitioners. Legislation is currently awaiting Presidential assent. A number of international nongovernmental organizations (NGOs) are active within the subsector although they provide credit mostly for petty trading and processing activities in urban and peri-urban areas.

Interest Rates—Annualized inflation to March 2000 averaged 30.6%. In May 2000 the Bank Rate was fixed at 47% and the Interbank Rate at 24%. Commercial bank cost of funds averaged 15%-19% derived from current accounts yielding 0% and savings account and term deposit rates of 31%-36%. Lending rates among commercial banks var-

ied from prime at 48% to 54%. Merchant banks were offering letters of credit (LCs) syndicated through international banks at London Inter-Bank Offered Rate (LIBOR) plus 3.5%-4%. Most DFIs charged 47%-53% on local currency lending with the exception of SEDOM and the primary NGOs. These two institutions use the straight-line method of interest calculation on the base rate, thereby effectively charging 86%-90%/year. Interest rates charged under APIP on smallholder food crop production lending were subsidized at 0%-40%, depending on the implementing agency.

Sectorial Distribution of Bank Lending—Since 1995 the commercial and merchant banks have been expanding their services to the non-agricultural sectors while reducing their lending to agriculture. This is a direct result of worsening default levels in the sector[7] caused by (1) a worrying level of willful default, (2) falling profitability of production systems due to the increasing costs of inputs and continuing high interest rates, and (3) investments in risk-free, lower cost management and high yield treasury bills and government bonds. For example, in May 2000, Treasury bill and government bond posted yields were 91 days—49.47%, 182 days—74.57%, and 281 days—73.6%, respectively. To restrict excessive GOM borrowing and bank investment in GOM paper, the Reserve Bank of Malawi (RBM) requires all commercial banks to lodge 35% of all deposits in the Liquidity Reserve Requirement (LRR) at 0% interest. Thus, commercial banks' investment in treasury bills is crowding out private traders from the financial market.

Availability of Finance for Agricultural Input Trading[8] **—**Accurate figures on lending by financial institutions to the agricultural inputs trading sector are not separately recorded. However, Table 2 provides an indicative estimate of financial institutions' lending by category of traders.

Table 2 indicates that financial institutions' lending has been dominated by support to the primary importers. During the period 1997/98 to 1999/2000, small- and medium-sized traders received only 16%-21% of the total credit disbursement to agricultural input traders. Table 3 indicates that during the same period, a clear trend is developing within the agricultural production sector with public sector institutions lending more to both estate and smallholder sectors each year than commercial banks.

Development Potential and Principal Constraints—Many of the essential elements necessary for the development of a well-functioning formal financial sector already exist within the economy including (1) government and donor commitments to promote market liberalization, introduce greater privatization within the commercial banking and DFI subsectors, and coordinate the development of the microfinance services and (2) the ongoing redesign of APIP as a potentially sustainable public/private partnership. Despite these advantages, the expansion of agricultural input and agricultural production credit services is significantly affected by a number of constraints that either limit lending institutions' ability to provide credit to traders or discourage traders from applying for credit.

- Foreign exchange purchase regulations that prevent importers from immediately rebuying foreign exchange using Malawi Kwacha (MK) generated from sales of inputs previously bought with foreign exchange in the previous season.
- The limited capital bases of the existing commercial and merchant banks (less than MK 1.6 billion) whose internationally instituted prudential limits on lending to individual borrowers and total foreign exchange exposure prevent them from lending to cover more than 13% of national annual agricultural input requirements.
- High interest rates limiting demand in all sectors and particularly in rainfed agriculture.
- Willful default by farmers/borrowers. This is facilitated by the absence of a national identity card mechanism[9] and is often encour-

[7]Default levels in all banks on overall portfolio are within 5%, while those in the agricultural sector vary from 5% to 15%. Recovery rates within the public sector institutions and special credit schemes are a source of concern. APIP has maintained 71%-74% loan recovery, while at MRFC loan recovery has fallen from 89% to 77% over the 3 years from 1996/97 to 1998/99. No program can be sustained with such high default rates.

[8]Issues related to credit for crop production are not covered in this report. However, for details on farm credit issues, interested readers are referred to a recent EU-funded study entitled "Malawi: Redesign of the Agricultural Productivity Investment Programme," draft report, Réseau Européan de Sécurité Alimentaire (RESAL), February 2000.

[9]The absence of a national identification card allows a significant proportion of borrowers to fraudulently obtain loans either under different names or simultaneously with more than one lender.

Table 2. Preliminary Estimates of the Levels of Credit Uptakes (MK million) by Agricultural Input Traders in 1997/98-1999/2000

Type of Fertilizer Trader	Commercial Banks and Merchant Banks			INDEFUND			SEDOM/DEMAT			MRFC			Total		
	1997/98	1998/99	1999/00	1997/98	1998/99	1999/00	1997/98	1998/99	1999/00	1997/98	1998/99	1999/2000	1997/98	1998/99	1999/2000
Main Importers	500	1,100	1,296	0	0	0	0	0	0	0	0	0	500.0	1,100.0	1,296.0
Commodity Traders	30	90	120	0	0	0	0	0	0	0	0	0	30.0	90.0	120.0
Small/Medium Traders	110	260	250	18	18	18	1.0	2.0	0	8.0	8.0	6.0	137.0	288.0	274.0
Petty Traders	0	0	0	0	0	0	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.3	0.3
Total	640	1,450	1,666	18	18	18	1.2	2.2	0.2	8.1	8.1	6.1	667.3	1,478.3	1,690.3

Source: Research team interviews with staff at the institutions and review of reports.

Table 3. Preliminary Estimates of the Levels of Credit Uptakes (MK million) by Agricultural Producers, 1997/98-1999/2000

Lending Institution	Smallholders			Estates			Total		
	1997/98	1998/99	1999/2000	1997/98	1998/99	1999/00	1997/98	1998/99	1999/2000
Commercial Banks	95.0	75.0	55.0	17,000	15,000	11,000	17,095.0	15,075.0	11,055.0
MRFC							204.7	547.1	418.7
APIP	146.3	546.7	472.3	0	0	0	146.3	546.7	472.3
AICF							0	121.0	115.2
NGOs	0.5	2.0	3.0	0	0	0	0.5	2.0	3.0
Total							17,446.5	16,291.8	12,064.0

Source: Research team interviews with staff at the institutions and review of reports.

aged by local politicians, and the absence of effective resort to the courts.
- The imposition of collateral requirements valued well in excess of loan amounts.
- Poor geographic outreach of commercial bank and DFI services whose outlets are centered principally in the urban areas.
- The separate operation of single-service DFIs (MSB for savings, SEDOM for nonagricultural enterprise development loans, and MRFC for small enterprise and agricultural production loans) unable to provide a full spectrum of savings and credit services.
- Absence of secure repositories of cash obtained from input sales at the rural trading area and village level necessitating regular collection and transfer to urban bank outlets of major sales receipts.
- The continuing inability of the GOM to rationalize the mechanisms under which the Tobacco Control Commission (TCC) and Auction Holdings Ltd. (AHL) allow single producers to hold both intermediate buyer licenses and AHL accounts, and thereby fraudulently market tobacco through alternative accounts to circumvent the tobacco stop order loan repayment system.

II.3. The Seed Market

Market Size—In recent years, Malawi's farmers have relied on commercial seed for about 25%-40% of maize planted area, all of cotton and tobacco planted area, most of the nut and coffee area, and smaller shares of areas planted to vegetables and minor field crops. Overall, the seed market (including government procurement and distribution) comes to about US $18-$20 million in recent years, with the lower amount indicating what the market would be without government and donor programs for subsidized inputs distribution.

Seed Companies—Reforms in 1996 removed controls on Malawi's seed trade, allowing new entry for seed companies and varieties (except hybrid maize, hybrid sunflower, and tobacco). Over the 4 years since these reforms, seed companies in Malawi have developed networks to sell seeds through almost 1,000 outlets throughout the country, and a number of new companies have entered the market for one or more crops. With new companies selling through private stores, ADMARC's share of Malawi's total seed market (including smallholders and estates) fell from about 90% in the early 1990s to only about 1%-2% in 1999.

However, despite reforms government has remained heavily involved in Malawi's seed market through a series of *ad hoc* donor-funded programs to buy and distribute seed for a succession of in-kind credit and relief programs. As of 1998 and 1999, in-kind credit and relief programs have accounted for more than 80% of the commercial seed market. Currently, the two most prominent government and donor programs in Malawi's seed trade are APIP and SPS as explained earlier.

Supply Sources by Crop—Malawi's seed sector may be considered according to submarkets, some of which are more developed than others. In Malawi, as in most countries in the region, hybrid maize is the largest proportion of national seed consumption, accounting in recent years for roughly US $13 million in annual sales. There are at least four companies in the market, including the National Seed Company of Malawi (NSCM) and Pannar (both of which produce seed in Malawi), Zamseed, and Seed Company of Zimbabwe (SEEDCO). The government research station at Chitedze breeds hybrid maize and currently has the most popular hybrid in the market (MH18). However, private hybrids can be expected to dominate in the future. More companies (e.g., Pioneer and BioSeed) may also enter the Malawi market, licensing local partners or simply shipping seed in for local sale.

The second largest seed market is for horticultural crops, including vegetables, fruit and nut trees, and others. In vegetable seed, two companies from South Africa currently share most of the market—Mayford has dominated Malawi's vegetable seed market for many years and Starke-Ayres entered (along with Pannar) over the last several years. Other companies with some sales include Press and Cheetah for paprika. Government and at least one project (with money and technical assistance from Taiwan) also produce and distribute (through agricultural development divisions [ADDs], at no cost to farmers, and outside market channels) some vegetable seed. For fruit and nut trees, farmers can get seed from various sources, including the Bvumbve Research Station, Coffee Research Station, Tea Research Station, and various projects, estates, etc. With one exception (Sensako, which owns Mayford), none of the primary vegetable seed companies in the world are represented in Malawi. Over the next several years, we can expect that seeds from these com-

panies—and from Indian companies that are strong in vegetables—will find partners to market their seed in Malawi.

For field crops other than maize, seed markets are developing for several crops. The Agricultural Research and Extension Trust (ARET) has begun to compete with NSCM for tobacco seed. Cargill has begun to introduce new varieties of cotton from Deltapine along with improved seed treatment, competing with Malawi's old cotton varieties that are available through ADMARC.

For many other cash and food crops—open-pollinated varieties (OPVs) of maize, groundnuts, pigeon peas, cowpeas, beans, soybean, rice—various government and NGO relief and development projects have been responsible for almost 100% of seed distribution over the last 5 years. Aside from distribution of project-linked seed that is unpredictable, farmers do not see dependable and competitive supplies of commercial seed in rural stores. For all of these crops, farmers have a limited choice of improved varieties, most of which have been released through Malawi's public research institutes. Some evidence suggests that commercial supply will emerge when government stops distributing free seed. For soybeans, for example, SEEDCO is currently testing varieties for introduction. A private businessman in Namadze currently arranges seed production for pigeonpea, beans, and groundnuts for sale through local stores. Also, seed companies in Zimbabwe and Zambia currently produce and market seeds for groundnut, millet, sorghum, pulses, and other crops, and could without much additional expense extend sales into Malawi if seed policies and practices are harmonized.

Regulatory Framework— Malawi's seed law and regulations,[10] with key features dating from 1996, is suitable in most respects for development of a competitive industry and trade well linked to regional and world markets. Significant features of seeds legislation include: (1) private companies allowed to introduce new varieties without government approval for all crops except hybrid maize, hybrid sunflower, and tobacco; (2) voluntary seed certification for seeds of all crops except the same three; (3) all commercial seeds must meet minimum quality standards and pass official laboratory tests; (4) truth-in-labeling; (5) import controls limited to phytosanitary concerns only; and (6) no requirement to license seed import, processing, or trade activities with the Ministry of Agriculture and Irrigation (MOAI). Working within these regulations, Seed Services has been arranging laboratory tests for seed quality for all seed producers, including small farmers.

The Seed Services laboratory at Chitezde is accredited with the International Seed Trade Association (ISTA) and is therefore authorized to issue ISTA Orange International Certificates, which many countries ask for with imported commercial seed. Several laboratories at Bvumbve and Chitezde issue phytosanitary certificates for seed exports and also test imported seed for pathogens (based on spot-check sampling of seed imports). However, phytosanitary controls on vegetative matter entering Malawi, including seeds, are not fully enforced.

Main Constraints—The following are the main constraints affecting the development of the seed market in Malawi.

1. Government/donor seed purchase on tender for distribution through give-away (safety net) and credit programs makes it difficult for major companies to plan domestic production.
2. The MOAI's controls on introduction of maize hybrids and introduction of new varieties for other crops restrict their availability in the market.
3. Low output and high input prices act as disincentives to seed market development.
4. Weak entrepreneurs and dealer knowledge about seed industry options.
5. Weak farmers' knowledge about crops and variety options.

II.4. The Fertilizer Market

National Fertilizer Consumption—Mineral fertilizers were introduced in Malawi in the 1960s. In 1964 the national consumption was 4,850 mt of nutrient (Figure 3). By 1999 Malawi's fertilizer consumption had increased to an estimated 191,650 mt of products (74,910 mt of nutrient) valued at 2.683 billion MK. Between 1964 and 1990, the average growth rate in fertilizer use was 8.8%/year. However, in the last

[10]The following Acts and Regulations provide the legal and regulatory framework for all aspects of fertilizer, seed, and pesticide marketing in Malawi: The 1986 Fertilizers, Farm Feeds and Remedies Act; the 1986 Fertilizers, Farm Feeds and Remedies (Remedies) Regulations; and the 1996 Fertilizers, Farm Feeds and Remedies (Amendment) Act.

decade, this growth rate fell to 1.3%/year, largely as a result of the massive devaluation of the Malawian Kwacha, removal of subsidy, and the higher level of international prices (in the recent past international prices have decreased significantly).

Use by Crop—Fertilizer is mainly used on maize (staple food grown on over 1.3 million ha) and tobacco (only major cash crop grown on over 105,000 ha). Use on other crops like groundnuts, rice, pulses, cotton, and cassava is insignificant. Since there is only one cropping season (i.e., rainy season—October to April), fertilizer consumption is concentrated in 3-4 months (October-January). Smallholder fertilizer use is about 75% of the national level. Although fertilizer consumption in the estate sector has increased, its share of the national market is on the decline.

Intensity of Use—Nutrient use is estimated to be about 43 kg/ha of arable land in 1999/2000. However, this figure is much lower if the area under permanent crops is also taken into consideration. In most cases, farmers use less fertilizer than recommended.[11] As a result, Malawi soils are continuously mined for nutrients. This continuous soil nutrient depletion accounts in part for the low yields recorded in Malawi (yield gaps average 48%-75%).

Multiplicity of Products—For a relatively small size market, there are far too many products in use in Malawi. Some of these products are low-analysis fertilizers with minor variation in contents. The nutrients in these low-analysis products are more expensive than those in straight high-analysis fertilizers.[12] The main fertilizers in use are 23:21:0 + 4S, calcium ammonium nitrate (CAN), urea, compound D, ammonium sulfate (AS), and monoammonium phosphate (MOP). There are about 20 other products that are also available.

Price Trend and Profitability—Fertilizer prices increased sharply in Malawi after devaluation. However, the current (1999) ratio of fertilizer price to the market price of maize (4.6) is only slightly lower than its 1988 value (4.8). In other words, while in 1988, 4.8 kg of maize was needed to buy 1 kg nutrient in urea, 4.6 kg of maize was needed to buy the same quantity of nutrients in 1999. The value:cost ratio (VCR) from the use of fertilizer on maize is a reasonable 2.24. This estimate is based on a nitrogen response of 20 kg of grain/ha,[13] using the common application practice of two bags of urea and one bag of diammonium phosphate (DAP)/ha, the current market price of urea/DAP, and producer price of maize. For cash crops like tobacco and sugarcane, the VCR is even better.

Product Pricing—To a large extent, all fertilizer-trading companies in Malawi, both in the public and private sectors, follow a pan-territorial pricing policy. There are minor differences in prices from location to location, but these do not

[11] For example, for hybrid maize the general recommendation is to use 87 kg or 2x50-kg bags of DAP/ha for basal application, and 175 kg or 4x50-kg bags of urea/ha for topdressing. However, farmers generally report using half of this amount or less.

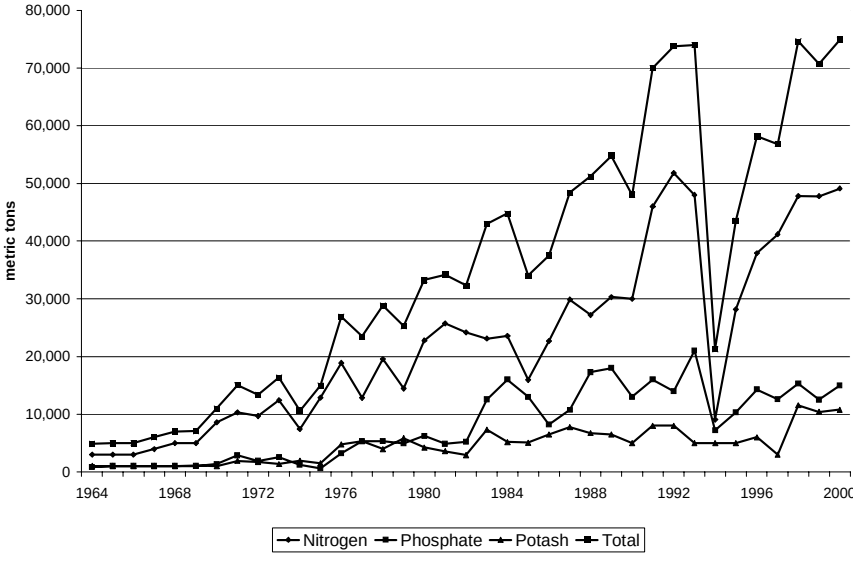


Figure 3. Malawi Fertilizer Consumption.

[12] For example, nutrients from the much-used product 23-21-0 + 4S and compound D are 20% and 40% more expensive than the corresponding cost of nutrients when derived from high-analysis fertilizers (urea and DAP).

[13] Response of hybrid maize to 1 kg of nitrogen has previously been estimated to be 20-50 kg of additional grain/ha at different rates of N application.

necessarily reflect the higher transport or other distribution costs. The additional freight cost is reflected in prices only in a few locations that are not easily accessible, like Chitipa. While there is no collusion, being an oligopoly situation, organizations follow each other closely in prices. However, there is evidence of competitive pressures leading to changes in prices, but there is no strong competition because companies make only limited effort in marketing their products by reaching out to the farmers with promotional strategies. With few exceptions the company or product image is not promoted with trademarks and logos.

Product Sourcing and Suppliers—In the past, fertilizer products were largely imported from manufacturers in South Africa through the land route on a delivered basis in 50-kg bags. However, this involved transporting product over 3,500 km on land, thereby adding considerably to marketing cost. As a result, in the last few years, supplies from the international markets are increasingly using the Beira (807 km from Blantyre) and Nacala (649 km) ports in Mozambique and Dar es Salaam (1,979 km) in Tanzania. From these ports products are transported by rail or road. While this has helped in lowering marketing costs, fertilizer prices in Malawi remain high due to insufficient linkages with international markets, still high transport costs, high risks, and limited competitive pressures.

There are five main organizations that together hold over 90% of the market. Two of these organizations are parastatals—ADMARC and SFFRFM. The other three organizations are in the private sector—Norsk Hydro Malawi Limited (NHML), Farmers World, and Agora—Farmers World and Agora are closely associated. In addition, there are many other importers/marketers who are in the market and are exploring ways to expand their business. The previously incorporated Optichem went out of business in 1998. A new organization in the private sector has taken over this company and will commence operations in 2000 under the name of Optichem 2000 Limited.

Private Sector Participation—Over the years, the private sector market share has increased at the national level and in both sales to the smallholder farmers and the estates. The private sector now accounts for over 75% of fertilizer supplies in Malawi. ADMARC, which had a monopoly until the late 1980s, now accounts for 10%-12% of the market. Government/donor tenders for the Starter Pack and APIP Programs account for the rest of the market.

Market Outreach—There are over 1,000 fertilizer retail outlets in the field, but these outlets are concentrated in the main towns. Almost all these outlets are company stores run by managers, and many stock groceries and other domestic supplies in addition to agricultural inputs. There is an almost total absence of the independent, local fertilizer dealer. Therefore, despite the existence of numerous fertilizer retail outlets, rural areas are not fully covered and farmers have to travel from 10 to 50 km to buy fertilizers.

Policy Environment—The deregulation and liberalization of the fertilizer market in Malawi started in 1990/91 when the private sector was allowed to import and sell fertilizers upon acquisition of a license. This process was completed in 1994/95 with the removal of subsidies and price controls. Currently, to import and market any type of fertilizer anywhere in Malawi, any private individual or firm is only required to go through a simple registration process. But in practice this requirement is hardly enforced. It is also a stated government policy to eventually privatize the parastatals, and efforts towards this end are still in progress. The private sector has responded very well to these initiatives and in 9 years there are now four companies who have been in business for several years and more than five (both large and small) who are quite keen to enter the business. However, since the parastatals are still in operation and there are frequent interventions in the market in the form of distribution of free fertilizers and seed, this creates uncertainty for private investment as explained in Section II.1.

Regulatory Framework—Significant features of current regulations include: (1) private companies allowed to introduce new compounds and compositions as they wish but must register them with the MOAI, (2) truth-in-labeling, and (3) no requirement to license fertilizer import or trade activities with MOAI. All imported fertilizers are tested either through preshipment inspection in the exporting country or by the Malawi Bureau of Standards (MBS) after import. The cost for this service is 1% of import value. In practice, this regulation is not fully enforced (e.g., there is no control for truth-in-labeling).

Market Constraints—The Malawi fertilizer market has been stagnant in the recent years. Discussions with key players in the fertilizer business revealed that there is potential in the market to grow to a level of 500,000 mt or more in a few years. However, this market may continue to stagnate if the constraints identified below are not removed. These constraints are in addition to those identified earlier in the policy and finance sections.

- The linkage with the international fertilizer market and importers' business skills and knowledge on how these markets operate is limited.
- Malawi, being a landlocked country, is dependent on ports in neighboring countries for arranging its imports. These ports do not have good facilities for unloading and bagging operations.
- The rural road network is poor. Heavy freight trucks can reach destinations in the rural areas with difficulty and a good deal of wear. This is reflected in the unusually high truck freight rates in Malawi.
- There is no systematic system of collecting and disseminating local and international fertilizer market information. Without reliable data, market planning or decision making becomes difficult.
- There is no monitoring for truth-in-labeling on imported fertilizers or fertilizers sold in the domestic market to ensure that farmers get the correct quantity and quality for which they paid.
- The total Malawi fertilizer market size is small. As a result, fertilizer imports in Malawi come in small shipments, and this increases product prices and freight costs.
- Limited farmers' knowledge about proper and balanced use of fertilizers, as well as the economics of fertilizer use and the accompanied input package (use of organic and inorganic material, quantity and timing of fertilizer application, etc). This is exacerbated by the multiplicity of products in the market.

II.5. The Crop Protection Product Market

Market Size—As a matter of national policy, the guide to agricultural production in Malawi advocates the use of chemical CPPs only when it is difficult to control pests using alternative methods. But in practice Malawi has a long history of almost exclusive use of chemical pesticides to control a wide array of pests in agriculture and public health. There are no reliable data on CPP use, particularly in the smallholder sector. Nevertheless, many in the industry estimate the total pesticide market in Malawi to be roughly US $10 million at the import level. While there has not been much growth in the size of this market in dollar terms, the potential is higher.

Use by Product Type—For the year 1998/99, insecticides and nematicides accounted for the largest share of the CPP market (67.5%). Both migratory and perennial pest outbreaks influence the quantity of insecticides used. Their control has been the sole responsibility of the government through donor-funded donations. Fungicides and herbicides accounted for 20% and 11% of the market, respectively. The other CPPs include chemicals such as plant growth regulators, sacarides, root hormones, and public health products.

Use by Crop—CPPs in Malawi are predominantly used on high-value cash crops, particularly on tobacco (30%), coffee (21%), cotton (15%), and sugarcane (14%). CPPs are only marginally used on tea (4%), macadamia (4%), maize (2%), paprika (2%), and rubber (2%). However for the 1999/2000 cropping season, the proportion of CPPs used on maize increased slightly. The predominant use of CPPs on cash crops has some spillover effects on food crops through the availability of chemical and application equipment and the issuing general familiarity with the technology and its effectiveness.

Use by Farming Sector—Most of the CPPs sold in Malawi are used in the estate sector and only about 5% is used by smallholder farmers.[14] Insecticides account for about 80% of smallholder farmers' CPP use, with the rest being fungicides. The limited use of CPPs in smallholder farming suggests that their biggest market growth area in Malawi is the smallholder sector. However, it is also the most challenging one to service.

Key Organizations—With the exception of donations on emergency campaigns to face outbreaks,

[14]However, it is important to recognize that the grouping of farmers in smallholder and estate farmers is currently misleading in Malawi. During the 1980s and early 1990s, many "smallholder" estates registered to grow tobacco. In addition, on many estates smallholder farmers grew tobacco as tenants. Finally, when the government allowed smallholder farmers to produce and sell burley tobacco (early 1990s amendment of the Special Crops Act), smallholder management became responsible for an even larger share of the tobacco crop. Consequently, to say that only 5% of smallholders used CPPs is slightly misleading.

the private sector supplies most of the CPPs used in Malawi. These come in through direct bulk importation of ready-to-use formulations, mostly from South Africa or Zimbabwe where the main companies in the country have their parent companies. Few companies repack products to suit individual needs (ADMARC, Agricultural Trading Company (ATC), and Chemicals and Marketing Co. Ltd).

Currently, one SOE (ADMARC) and three private companies (Rhone Poulenc Malawi, Farmers' Organization, and Chemicals and Marketing Co. Ltd.) are the main importers and distributors of CPPs in Malawi on a commercial basis. The private companies sell their products from their premises or through a number of wholesale stores distributed throughout the country in the main towns. In most cases, these stores sell these inputs as a side business and thereby do not promote their marketing. The private companies have not developed a system of dealers with the potential of reaching farmers in rural areas. Typically, these companies do not offer any special credit facility except for the normal 30-day facility. These main commercial companies are grouped into an association called the Pesticides Suppliers Association of Malawi (PSAM). The association is a member of the Global Crop Protection Federation (GCPF) and was instrumental in drafting the new Pesticide Bill that the Parliament is likely to ratify in the near future.

Besides the commercial companies, there are a number of large holders or farmer organizations that directly import CPPs for their own use or occasionally source them locally. These include Farmers' Cooperative; Sugar Estates at Sucoma and Dwangwa; the Dwangwa Cane Growers, Ltd.; Press Agriculture; Sable Farming Company, Limited; Kawalazi Estate, Ltd.; and Zikomo Flowers, Ltd. In addition, the government is an active participant in the CPP market through in-kind donor-financed donations, particularly from the KR-II program (20%-25% of the national CPP market).

Institutional Support—The CPPs institutional support includes a number of research units, crop specific associations,[15] MRFC, the MBS, and the Agricultural Extension Service of the MOAI. In practice, however, the MBS is not playing its critical role (e.g., control for truth-in-labeling and residue testing on food products) in the development of the industry. Similarly, the extension service has limited knowledge about CPPs and their proper use. Finally, there is no institution or organization generating and disseminating market information and safe use of CPPs.

Regulatory Framework—Compared with seed and fertilizers, a distinctive characteristic of the CPP market is the lack of an institution to enforce the existing legal and regulatory frameworks. Consequently, there exists a significant informal and unrecorded CPP market. Persistent organo-chlorine compounds such as dieldrin, which are not approved for sale, are sold in Malawi. CPPs are being inappropriately used on food crops (misapplication, overdosing, lack of safety precaution and equipment during application procedure), in various suicide cases (e.g., temic), and for hunting mice for human consumption (e.g., temic). Low standard storage management, inadequate facilities (e.g., inadequate ventilation), and the availability of pesticides in unlabeled containers or in similarly labeled containers sold by different companies are a concern. These conditions not only limit accountability and ruin the reputation of companies but also compromise farmers' health because they increase risk of residue buildup in the food chain, contamination of drinking water, and buildup of pesticide resistance (e.g., recorded resistance on tomato from the use of dimethrine).

Furthermore, in a recent survey covering the southern and part of the central (Lilongwe and Salima districts) regions, Daudi et al. (1999) report that there are substantial amounts of obsolete products in the country, particularly in the estates, ADDs, and research stations (30,633.80 L and 2,478,831.1 kg). These products have accumulated because of excessive donation (no forecasting of the requirements exists) and unrecorded importations, particularly from Mozambique. While dealing with products for perennial and migratory pests is the sole responsibility of the MOAI, some of the obsolete products are chemicals the public sector does not need to tender for (e.g., Actellic Dust) since they are sold by the private sector. Although the reported amount of obsolete products is disputed in a number of circles, there

[15]These include the Tobacco Association of Malawi (TAMA), the Paprika Association of Malawi, the National Association of Smallholder Farmers of Malawi (NASFAM), TCC, and the Tobacco Exporter Association of Malawi.

is unanimous recognition that the stock is indeed substantial and poses great danger to the environment and human heath. A recent effort to deal with these stocks through the integrated pest management (IPM) Task Force has lost its momentum.

There exists a draft Pesticides Bill awaiting approval by the Cabinet and enactment by the Parliament. The proposed legislation is standard, similar to what is in practice in most other countries. Adoption and implementation of this legislation will introduce some major changes in the current pesticides trade, including: (1) restricting imports to pesticide traders registered with MOAI, (2) limiting products allowed for import to a list of registered products, and (3) limiting pesticide wholesale and retail trade to enterprises licensed through MOAI. Intended gains for public health and the environment may be limited if new controls also raise costs and restrict access to safer products (such as pheromones, plant growth regulators, microbial pesticides, and other relatively safe biopesticides).

Main Constraints—A host of significant constraints continue to hinder the effective development of an efficient pesticide market in Malawi. These include (1) the lack of effective enforcement of the legal and regulatory framework, (2) the absence or limited availability of traders' credit facilities, (3) lack of reliable market information, (4) the illegal cross-border trade, (5) the daunting task of developing a market clientele, (6) the poor accessibility and road conditions in rural areas, and (7) the limited effective demand from smallholder farmers.

There is no doubt that an effective regulation of the CPP market will mitigate the constraints and problems mentioned above. However, by itself, enforcing the law and regulations is not enough to minimize the negative externalities associated with the use of pesticides in public health and on the environment. This is in part because of the low farmer and public knowledge about CPPs and their proper use. The challenge for Malawi is to find ways to develop the CPP market while minimizing these negative externalities.

III. An Action Plan for Developing Sustainable Input Supply Systems in Malawi

III.1. Rationale for the Action Plan

The proposed *Action Plan* for strengthening the liberalized input markets and for encouraging greater participation of the private sector is based on historical perspective and shifting the supply curve to the right.

Historical Perspective—The agricultural lending experience of the World Bank and other donors in Africa during the 1960s indicated that there was no active private sector to assume responsibility for marketing and investments in the agricultural sector [Mason and Asher, 1973]. This experience induced donors to create and support activities of SOEs in many developing countries. Additionally, when SOEs were created they were given monopolistic power for marketing and investment in the agricultural sector and the private sector was barred from marketing agricultural inputs and outputs. However, by the early 1980s it became clear that many SOEs were not operating efficiently and had become a burden on the national budget [World Bank, 1989]. Unsustainable fiscal imbalances and inefficient use of resources by SOEs forced many developing country governments to move towards privatization of the SOEs. By the early to mid-1990s, many SOEs in the agriculture sector in Africa withdrew from marketing and investment activities or were no longer in monopolistic positions. The private sector was allowed to participate in the marketing of inputs and outputs. However, due to structural constraints the response from the private sector was slow. Macroeconomic instability leading to devaluation and high interest rates, lack of marketing skills and finance, and inadequate regulatory systems continued to limit the active involvement of the private sector in input business.

This slow response from the private sector may wrongly convince some policymakers, donors, and others to move back to the public sector monopoly in input distribution. Such a move would be premature because it would divert the attention from removing the structural constraints to the participation of the private sector. Macroeconomic stability, access to finance, business skills, market information, and regulatory frameworks are still not in place. As shown in this report many of these constraints have prevented the Malawian private sector to participate effectively in input marketing after the liberalization. Deregulation and liberalization are necessary but not sufficient to encourage private sector participation. Years of discrimination and neglect have left the private sector underdeveloped and the input markets fragmented. Rather than returning to

the old SOE system, African countries and donors should invest resources in building the necessary human capital and marketing infrastructure and in creating a conducive policy environment for facilitating the private sector participation in input and output marketing. The private sector has considerable latent potential to perform marketing activities in an efficient manner; to realize that potential, however, structural and capacity constraints restricting its activities should be removed.

Shifting the Supply Curve to the Right—Figure 4 illustrates the typical supply and demand curves economists use to explain the behavior of prices in a free market situation. The horizontal axis measures the quantity of input (e.g., fertilizer), and the vertical axis indicates the prices of the same input. The demand curve D slopes downward from left to right indicating that the quantity demanded of fertilizer by farmers increases as the price of the fertilizer decreases and vice-versa. The supply curves S1 slopes upward from left to right indicating that as the price increases, the quantity of fertilizers supplied by traders/ manufacturers increases. At price OP1, quantity demanded equals quantity supplied (OQ1). Therefore OP1 is referred to as an equilibrium price and point A as an equilibrium point. The price OP1 is very high (e.g., $300/mt of urea) and therefore the quantity traded is low (e.g., 200,000 mt of urea). Because the resource-poor farmers in Malawi and other developing countries cannot afford to purchase fertilizers at such a high price, one possible solution is to provide a subsidy (e.g., $100/mt) and reduce the price to OP2 ($200/mt of urea). Now at this price, the demand outstrips the supply and therefore some mechanism for rationing is required to allocate this limited quantity among all farmers. This solution was tried by many African countries but could not be sustained due to budget deficits. Also, it introduced distortions in the market and led to an inefficient use of resources.

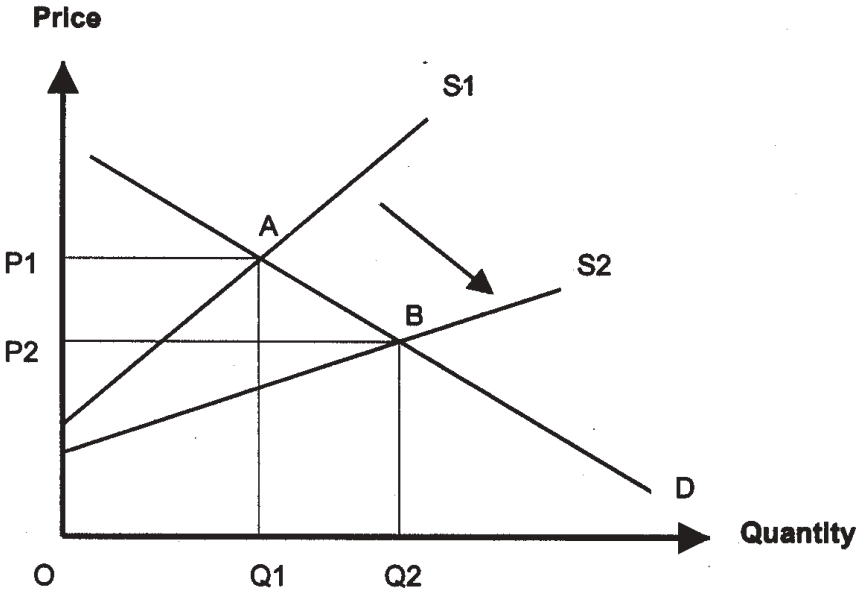


Figure 4. Price and Quantity Relationship.

The position of the supply curve S1 on the vertical axis indicates that the minimum price at which the suppliers are willing to offer any quantity is very high. This is true because the market is small and suppliers incur high costs in procuring and shipping small quantities, thereby not benefiting from the economies of scale in procurement and transportation. Also, the suppliers are not procuring their product from the cheapest source in the global market due to various constraints they faced in accessing information and finance. Because of all these constraints, supply price is generally very high as is the case in Malawi.

Rather than following the subsidy route, the price of fertilizers can be reduced by shifting the supply curve to the right—from S1 to S2. Such a shift in the supply curve is possible if the economies of scale in procurement and shipping can be realized and the fertilizers can be procured from cheaper sources through better access to information and finance. By shifting the supply curve to the right (point B), prices can be reduced and the quantity of fertilizer used by farmers can be increased thereby promoting food security at both household and national levels. Such a move reduces the need for subsidies and ensures higher return on the capital invested in business (because under S2 supply situation, fixed cost per unit sold is lower). Thus, by shifting the supply curve to the right, benefits can be created for all stakeholders—farmers, traders, and the country at large.

Can the supply curve for agricultural inputs in general and fertilizers in particular be shifted to the right in Malawi? The analysis of various constraints in this report suggests that these constraints have kept the supply curve at S1 position in Malawi. The removal of these constraints can help in shifting the supply curve to the right. Therefore, the proposed *Action Plan* embodies the measures needed to shift the supply curve to the right and thereby realizing the latent potential of the private sector in supplying various inputs efficiently in a sustainable manner. The activities proposed in the areas of policy reform, human capital formation, improved financial services, market information system, and regulatory frameworks are all geared to shifting the supply curve to the right and to helping the private sector in realizing its potential.

Although the primary focus of the *Action Plan* is on shifting the supply curve, which will help the farmers by reducing prices and making inputs easily accessible, technology transfer activities (on the demand side) are expected to help the farmers in realizing more benefits and higher yields from the same amount of inputs. Thus, this activity will help the farmers in realizing more incomes by shifting the demand curve.

It is recommended that a free market system be used to supply inputs in rural areas because such a system is efficient and sustainable and does not strain the fiscal resources of the country. However, to strengthen the functioning of the agricultural input markets, concurrent actions in the areas of policy reform, dealer networks, financial services, and others should be taken as explained below and summarized in Action Plan Matrix 1.

III.2. Creation of a Supportive Policy Environment

To promote the development of efficient input markets through greater private sector participation, it is essential that a conducive policy environment be created. This will require addressing macropolicy constraints identified earlier and removing the policy uncertainty resulting from the involvement of donors and the government in input distribution. On the macropolicy front, ensuring the stability in exchange rate and reducing the interest rates to more affordable levels should receive priority. Overall, an appropriate management of fiscal, monetary, and exchange rate policies should restore macroeconomic stability. Moreover, Malawi has a chronic deficit in the balance-of-payments account and needs foreign aid to bridge the gap. It is estimated that during the next 5 years, Malawi may need US $65-$80 million/year in foreign exchange to finance input imports. It is recommended that while preparing the national requirements for foreign exchange, GOM and donors should ensure that the required amount of foreign exchange is available in the market when the importers need it.

Actions will also be needed to improve rural roads and physical security in the rural areas. Investments in all-weather roads should be made and local communities and governmental authorities should work together to ensure security in the rural and semi-urban areas.

Policy uncertainty resulting from the donor-financed and government-supported programs should be removed by taking the following actions:

1. **Marketize All Donor Programs—**Both the APIP and SPS programs should replace international tendering by vouchers. Farmers should be given vouchers to purchase seed and fertilizers from the dealers of their choice. The use of vouchers in input distribution has two main benefits. First, vouchers will provide the purchasing power to resource-poor farmers to buy inputs. Second, if donors and the government can announce the availability of funds through vouchers 3-4 months prior to the planting season, then the private sector can plan to import the needed inputs. As these programs could account for nearly one-third to one-half of the fertilizer market, input distribution through vouchers can really strengthen the input markets by building confidence among the importers and dealers. Once the voucher program is in place and is operating efficiently, mechanisms for targeting vouchers under the SPS to the really poor and needy farmers must be developed.

2. **Integrate KR-II Imports With Commercial Imports—**Inputs received under KR-II grants from Japan should be auctioned in a transparent manner to the private sector at the market-determined price. Private importers can then blend these imports with their commercial imports and sell them all at a fair price. It is further recommended that the counterpart funds received from such auctioning should be used to sup-

Action Plan Matrix 1. Policy and Market Development Issues

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
A. Macro Policy Issues								
1. Devaluation of Kwacha in 1998 had negative impacts on both input supply and use. Further depreciation of Kwacha may discourage investment in supply systems. High interest rate also restricts investment.	Ensure macroeconomic stability by appropriate management of monetary, fiscal, and exchange rate policies.	Reserve Bank of Malawi (RBM) and Ministry of Finance (MOF) with support from IMF and the World Bank.		X	X	X	X	X
2. Inadequate availability of foreign exchange for input (especially fertilizer) imports.	Ensure adequate supply of foreign exchange (US $65-$80 million/year) in the market for input imports; include it in estimating overall balance-of-payment support requirements.	MOF, MOAI, RBM, and donors.		X	X	X	X	X
3. Poor quality of rural roads adds costs and discourages traders from penetrating into rural areas.	Long-term program of constructing all-weather rural roads should be initiated.	Ministry of Transport and Public Works		X	X	X	X	X
4. Physical security in the countryside prevents the development of dealer networks and banking branches.	National and community-based programs for ensuring security of people and property should be developed.	Government of Malawi and local communities.		X	X	X	X	X
B. MARKET DEVELOPMENT ISSUES								
1. Policy uncertainty resulting from well-intentioned donor-financed and government-supported programs (SPS, APIP, KR-II, ADMARC, and SFFRFM)	Marketize all donor-financed and government-supported programs as follows:							
	(a) SPP and APIP should use vouchers rather than commodities.	MOAI, DfID & EU		X	X	X	X	X
	(b) Develop mechanisms for targeting the needy farmers under SPS.	MOAI and DfID				X	X	X
	(b) ADMARC should continue to commercialize operations.	MOAI & ADMARC		X	X	X	X	X
	(c) SFFRFM should be privatized because buffer stocks of fertilizers are unnecessary and costly.	MOAI with support from specialized institutions and/or project entity			X	X		

Action Plan Matrix 1. Policy and Market Development Issues

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
2. Inadequate access to financial resources and services.	(5a) Work with bankers and trustworthy input traders to develop rapport between them.	Commercial banks and traders.		X	X	X	X	X
	(5b) Create Agricultural Input Import Fund.	MOAI and donors with support from specialized institutions and/or project entity.			X			
	(5c) Use KR-II and other counterpart funds to create Agri-Input Business Development Fund to encourage bankers for agri-inputs business lending	MOAI, Ministry of Finance, JICA, other donors, and project entity.			X			
3. Lack of human capital for competitive markets.	(2a) Conduct large-scale short-term and long-term training programs for importers, bankers, wholesalers and retailers.	MOAI and donors with support from specialized institutions and/or project entity		X	X	X	X	X
	(2b) Facilitate the creation of agri-input traders' associations.				X	X		
	(2c) Arrange study tours to developed and developing countries.					X	X	X
4. Lack of enforcement of 'Truth-in-Labeling' laws.	Strengthen MOAI's capability to enforce existing laws and enact new rules to protect farmers and the environment. Conduct training programs and study tours.	MOAI and donors with support from specialized institutions and/or project entity.				X	X	
5. Lack of market information about global, regional, and local prices and quantities	Create a market information system (MIS) with MOAI to collect, analyze, and disseminate information about prices, stocks and availability of inputs.	MOAI and donors with support from specialized institutions and/or project entity.			X	X	X	X

port market development activities, including the establishment of the Agricultural Inputs Business Development Fund (AIBDF), proposed in Section III.4.

3. **Commercialize the Operations of the Parastatals Involved in Input Distribution**: ADMARC and SFFRFM are two parastatals involved in distributing inputs. To provide equal opportunity to all market participants, ADMARC should sell its inputs at full cost (including storage and transportation charges). SFFRFM was designed to keep buffer stocks so that the country was not deprived of inputs at critical times. When the civil war in Mozambique prevented the use of Beira and Nacala ports, such a buffer stock was a necessity. Now that both ports are open and Malawi has access to Dar-es-Salaam and Durban ports and the private sector can procure fertilizers from South Africa within 2 weeks (provided the availability of finance is not a constraint), there is little need to keep buffer stocks. Therefore, SFFRFM should be gradually phased out. During the transition period, it should also commercialize its operations by selling imported fertilizers at full cost to potential dealers at its warehouses in Blantyre, Lilongwe, and Mzuzu.

III.3. Development of Human Capital and Dealer Networks

An AIM comprises the manufacture, production, or procurement of the input and the marketing of this input to farmers. The performance of this market depends not only on the level of competition at each level of this chain but also on the weakest link in the chain. With government withdrawal from the procurement and distribution of agricultural inputs in Malawi, the private sector now has to procure the inputs needed in appropriate quantity and quality and at reasonable prices. Downstream in the chain, farmers have to be serviced by a nearby salesman or distributor. There are several types of private sector distributors. Distributors can be agents, dealers, or farm cooperatives. An agent is an individual or a local company who puts the supplier and farmers in contact. He/she is typically small and diversified and is usually remunerated in sales commission. Agents work exclusively with one brand, may have a modest stock, help collect payments, and ensure local advertising. In contrast, a dealer is usually a small local company that buys wholesale from suppliers and retails to farmers. Unlike an agent, a dealer has a rotating stock for prompt delivery and may be a blender or a mixer. He/she is also a risk-taker.

Currently in Malawi, a few companies or organizations dominate the upstream part of the agricultural input procurement and distribution chain. Downstream in the procurement and distribution chain, there is an almost total absence of local independent dealers. The absence of dealers is a weak link in the chain, and this limits its performance. A cadre of strong, skillful, and knowledgeable dealers is therefore necessary to ensure the widespread availability of agricultural inputs at convenient places and times and at competitive prices. This dealer network will get the rural trading activities going and develop the markets in remote areas.

Post-reform experiences throughout the world suggest that an effective network of private distributors does not develop overnight. It has to be nurtured over time through patient, well-thought, and collaborative supporting initiatives. Previous efforts to increase the use of modern inputs in Malawi have almost exclusively concentrated on the needs of farmers and ignored the needs of dealers in training and access to capital. Yet the local independent agri-input dealer is the important link between the manufacturer or importer and the farmer. If adequately trained, successful dealers become important change agents. As they make products available to farmers at their doorstep at competitive prices, they keep the farmers informed of the changes in agricultural technology and promote the proper use of products. With good skills and knowledge, entrepreneurial initiative and drive create a constant search for improvement that leads to customer satisfaction. Such initiatives include the provision of services and technical information on products and product use as the entrepreneur develops this clientele. These initiatives reinforce and facilitate the work of the traditional extension service and hasten the development and transfer of new technologies.

To fill the current dealer vacuum, potential dealers need to be identified and adequately and constantly trained in the areas described above. The agri-input dealer network will

have to be placed in the rural areas at potential sales points that are already frequented by farmers for either sale of outputs or purchase of items for home use. The dealer should be a local person with intimate knowledge of the agriculture of the area and good relationship with the farmers. Preferably, the person should have some business knowledge and a retail shop with some storage space.

Upstream in the distribution chain, importers need to have intimate knowledge of the local input market, product knowledge, and knowledge of agriculture and farmer's requirements. They should be able to forecast with a good deal of accuracy their own import requirements based on their objectives in the market and their plans. To arrange supplies at optimum costs, importers must have good knowledge and understanding of the international agri-input markets and the way these markets operate. In addition, they should be well versed in international trade, shipping, banking, and customs practices and procedures. To obtain quality products at competitive prices, importers need to know where to obtain information on products, prices and supply availability and have good linkages with reliable input manufacturers and traders from several countries. With this information, they should be able to determine the best time to make their purchases.

Downstream in the distribution chain, dealers need to have a good knowledge of the agriculture of the local area, close relationships with the farmer-clients, and good product knowledge. They also need to have some business knowledge, selling skills, and an idea of banking procedures, documentation, and record keeping in order to conduct business profitably while meeting the needs of their customers. At the farm level, it is important to have farmers who are adequately skillful and knowledgeable to grow enough food both for their own consumption and for sale. For this purpose, it is necessary for farmers to conduct the business of farming not only as a way of life but on a commercial basis. This would imply using modern agricultural practices and therefore having full knowledge of the required inputs and their proper use. Needless to say, this requires regular and consistent exposure to knowledge and technology through training and extension.

In Malawi not all importers have the market understanding, information, and skills to arrange supplies at optimum costs and obtain quality products at competitive prices. Consequently, they need training in the different aspects at specially tailored programs. Even for importers with a good market understanding and skills, there is always a continuing requirement for training and skills development in marketing and customer orientation. Farmers in Malawi have some idea of the modern agricultural inputs—good quality seed, fertilizers, and CPPs. However, their knowledge of the proper and economic use of these inputs to derive the maximum benefit and optimize their income is limited. The constant training of farmers is essential to have and sustain a growth in agricultural production and productivity. Such training should be frequent, demand driven, and responsive to the varied requirements of the participants.

More generally, private sector input distributors in Malawi have a limited ability to effectively perform their functions not only because of limited entrepreneurial skills but also due to difficult access to procurement and distribution credits and the lack of appropriate market information. Potential dealers will therefore need assistance in setting up business in their local markets. Initially the dealers may need help and assistance in arranging funds to partly finance their operations. Once in place and having established their own credit history, they should be able to arrange normal commercial credit lines through the banks (see Section III.4 for details).

The development of dealer networks is well served by the supply and exchange of market information and the encouragement of voluntary formation of trade associations. Furthermore, it is also essential to build linkages among suppliers of credit, agri-input entrepreneurs, and policymakers. Such linkages develop through training programs and the formation of dealer trade associations. There are many farmer associations in Malawi. Generally, these associations are formed to improve markets for outputs (e.g., Tobacco Exporter Association of Malawi) and in some cases to reduce input costs through group purchasing activities (e.g., Farmers' Co-op). Such associations also assist members in borrowing funds from commercial banks or other financial institutions by providing the group's guarantee as collateral (e.g., farmers club).

However, another important form of association that is overlooked in Malawi is agribusiness trade asso-

ciations (ATA). These are voluntarily formed by private businesses to improve their businesses through education, training, exchange of information, and lobbying efforts. Such efforts include working with the government to address issues of interest such as maintaining soil test laboratories, dealing with regional transport problems, and emphasizing proper product standards and quality inspection. Through shared experiences, these businesses develop a group dynamic that hastens and sustains the development process. Although ATAs are not profit-making centers, they should have sufficient revenue to provide desired member services. However, initially their development process has to be supported with provision of counseling and technical assistance.

III.4. Strengthening of Financial Services

Four principal groups of actions are seen as essential to be taken if the financial sector is to provide more accessible and effective development assistance for viable agricultural inputs trading and agricultural production: (1) the establishment of an Agricultural Input Import Fund (AIIF), (2) the establishment of an AIBDF, (3) the creation of incentives to improve the outreach of finance services and develop more efficient development finance institutions, and (4) the urgent institution actions to eliminate the culture of willful default.

The Agricultural Input Import Fund

The objectives of the fund would be to assist with human capital development and financing of importation of inputs by the private sector[16] and increase competition through the introduction of additional participants in the trade. Financing would be sourced from balance-of-payment support. The AIIF would help as follows:

- The establishment of a US $15 million supplementary foreign exchange fund to provide partial guarantee for Letters of Credit (LC) for importers. Participating importer/borrowers would provide 30% up-front payment. Guarantee from the fund would be limited to US $1.0 million per client per season (accounting for 35% of the loan) and the financial institution will bear 35% risk.
- Two weeks of overseas training in Europe/United States for senior bankers from commercial and merchant banks in all aspects of agricultural inputs trading and related use of forex and Malawi Kwacha (MK) credit services from ex-factory via shipment to end-user farmers to enable them to establish and manage loan portfolios dedicated to this purpose.
- Four weeks of training overseas and within country for potential input importers/year over 4 years in all aspects of procurement, shipment, customs and technical analysis, warehousing, wholesaling, inland transport and retailing procedures, financing, and related business management skills for possible financing by cooperating banks.

Under the present market arrangements, the primary importers buy foreign exchange throughout the year to hedge against inflation and currency depreciation to reduce eventual borrowing requirements. Furthermore, because of the high proportion of contracted supply arrangements under tender for APIP and SPS (40% of the market) and under contract with agreements to MRFC, importers are able to obtain substantial advance payments in foreign exchange prior to shipment and 90-180 days credit on LC for the remaining, which can be paid for during this period.

Any future movement away from tendering will therefore require importers to attempt to secure LC finance without having prior orders to justify 90- to 180-day credit. This will mean that the larger importers will be forced to commit a greater proportion of collateral and security on LCs and/or access additional offshore credit from their associated companies unless the foreign exchange regulations are modified to allow automatic redemption of foreign exchange for Kwacha earned on inputs originally purchased with foreign exchange. Alternatively, banks could be assigned ownership of warehouse stocks until paid.

Given the constraints in foreign exchange availability, the high credit ratings of the principal importers,

[16]Using 2000 prices and assuming all requirements are imported immediately prior to the cropping season, the total annual foreign exchange borrowing requirements for agricultural inputs are estimated at US $65.5 million. On the other hand, assuming a total capital base of the commercial and merchant banks of MK 1,600 million and the limits fixed on foreign exchange lending within overall internationally delineated prudential limits, in May 2000 total foreign exchange lending by Malawi banks could not exceed MK 396.6 million (US $8.4 million) leaving an offshore borrowing requirement shortfall of US $57.1 million (MK 2,681.9 million equivalent). In actual practice this shortfall is likely to be much lower (US $25 million).

and the perceived risk of default amongst new entrepreneurs, the Malawian banks are not lending to the new entrants needed to further generate import competition and to drive down prices. Typically, these new entrants are unable to advance more than 30% up front as Kwacha and satisfy the stringent collateral requirements. To reduce this constraint a supplementary source of foreign exchange will be required for the commercial banks to borrow from RBM to directly add to the borrower's contribution and bank foreign exchange loan to pay for LCs. Prior to such lending bank personnel and new importer-borrowers alike will require extensive training support in all aspects of agricultural input trading and financing (as explained in Section III.3).

The Agricultural Inputs Business Promotion Fund

Within the internal market, adequate MK funds are available among the commercial banks and development financial institutions to finance new dealers, local traders, and NGOs supporting lending for petty trading. However, the principal constraint remains in the form of stringent loan conditionalities. The banks/DFIs will therefore require additional incentives to cover the perceived risk if stringent collateral requirements are to be reduced. Adequate sources of own funds are available to cover all credit requirements provided they are backed by a guarantee fund and a thorough training program for both credit officers and borrowers (trainee dealers/traders/petty traders).

The objectives of the AIBDF would be to encourage a greater element of direct selling to new dealers/traders/petty traders by importers/wholesalers, and thereby compete with the current vertically integrated wholesale and retail commission selling mechanisms and drive down prices for end users while more effectively spreading the inherent risks and profits across all elements of the trade. The AIBDF would be financed from counterpart fund sources and involves:

- An MK 100-million loan guarantee facility to be established for reducing collateral requirements for the loan of commercial banks' own funds for up to 300 dealer traders over 4 years. Borrowers would be required to provide 25% up-front payment and obtain a loan of up to MK 0.2 million. In cases of default not associated with bank malpractice and acceptable to all participating institutions, the bank will be able to reclaim only 50% of the amount due from the Guarantee Fund. Funds would also be drawn down by MRFC and NGOs to finance petty trading groups.
- In-country and overseas training for credit officers and up to 300 local dealers/traders and petty traders over a 5-year period in financing, interpreting technical analyses, warehousing, transport, and retailing agricultural inputs.

A joint participating bank team assisted by the international training institution contracted to provide the specialist training would undertake selection of trainee importers and traders/dealers.

Such special fund programs (AIIF and AIBDF) integrating training with loan financing and guarantees will require sources of foreign exchange funding and Kwacha guarantees. Currently, Malawi receives bilateral and multilateral donor assistance in three separate forms: (1) "Commodity Grants," which in turn generate "Counterpart Funds" or "Revolving Loan Funds" for further development financing or lending; (2) "Lines of Credit" lodged with development financial institutions to support private enterprise development; and (3) "Balance of Payment Support" funds provided as foreign exchange to Ministry of Finance (MOF) through RBM. Adequate sources of financing are available for these purposes subject to GOM and donor approval.

Introduction of Incentives to Improve Financial Service Outreach

Expanding Bank Outlet Networks—Financial services outreach will only expand into the rural areas when banks, DFIs, and NGOs can generate sufficient income to cover costs and accrue additional margins for profit and/or development/expansion. Current constraints in the credit sector are not seen as conducive to expanding full branch networks. However, within outlying areas there is an acute shortage of cash depository and transit services among rural enterprises, DFIs, NGOs, and MUSCCO/Savings and Credit Cooperatives (SACCOs) as well as MSB and the commercial banks. While depository and cash transit fees in their own right may not be sufficient to justify the opening of new bank agencies, incentives made available in the form of corporate tax breaks could provide the necessary incentive for the introduction of such services. It is recommended that this issue be more seriously investigated.

Possible DFI Mergers—MSB is currently expanding its operations to include a lending portfolio while both SEDOM and MRFC require a mechanism to raise loan finance on the internal market. To minimize operating costs and maximize field service efficiency, consideration should be given to using MSB finance and lending capital sources for both SEDOM and MRFC and later amalgamating them to form a single banking institution within the *Action Plan* period.

Linking Producers to Markets Through Lending Institutions—While significant efforts are being made within the agricultural sector to encourage diversification into new food and cash crops, farmers are still experiencing difficulties in securing markets for new production. To date, few banks and DFIs have attempted to significantly expand into the greater involvement in closed cycle lending and marketing arrangements under which producer borrowers are contracted by the lending institutions to identified markets offering minimum guaranteed prices. Such systems operate most effectively for high value cash crops with minimal local demand destined for industrial processing or export. Consideration should be given in the MRFC and APIP programs for expanding the use of such arrangements.

Elimination of the Culture of Willful Default

Coordinated action is needed immediately if rural sector lending services are to break even in many institutions and special programs. Both public and private financial institutions are ready to tackle the issue head-on but await demonstration by GOM, political leaders, and communal authorities of real commitment to act. The essential elements of the necessary program involve the following:

- Adoption by all political parties of an immediate moratorium on political interference in credit issues and a commitment to take action against any individual encouraging willful default.
- Use of traditional authorities to identify known defaulters within their areas of jurisdiction.
- Introduction of the planned National Identity Card program as a matter of utmost urgency.
- Establishment of a Credit Reference Bureau involving the amalgamation of the databases of all lending institutions.[17]
- Reconstitution of the TCC tobacco intermediate buying licensing system to minimize fraudulent selling on other AHL accounts to avoid due stop-order deductions from sales proceeds by borrowers.
- Revising and updating of the current legislation relating to actions taken against defaulters and the Sheriffs' Courts assets seizure systems.
- The above actions will only begin to produce results if all parties follow them up impeccably. Action Plan Matrix 2 provides a summary of the key recommendations with regard to the financial issues and constraints identified in this study.

[17]The redesigned APIP II program is expected to have its own internal system in operation in 2001 financed by the Food Security Project (FSP) client investigation fees. As a national service is required as soon as possible, additional donor and private sector finance will be required to be committed this year to finance the necessary transformation (MK 10 million).

III.5. Creation and Operation of Market Information Systems

Accurate market information is essential for any business in the world. The more accurate, detailed, and timely the information, the easier it is to develop market plans and make decisions. With the rapid progress in electronic data processing, it has become very easy now to collect, collate, analyze, and store data. Furthermore, with the widespread use of e-mail and the Internet, it has become easier to exchange or obtain valuable data and/or information that is timely and constantly updated on almost any subject at a very small cost.

The MIS relating to agri-inputs in Malawi are not developed. There is not much awareness of the international situation and the prevailing global prices of agricultural inputs, even among large importers. As a result, linkages with the international input manufacturers or traders are weak. Even on a regional basis there are not much data available that can provide information about what is happening in the neighboring countries. As far as information on the input markets within Malawi is concerned, the situation is not very different. Presently, there is no organization that systematically collects information on inventories, sales, imports, local processing or blending, distribution, consumption, etc., of agricultural inputs. Consequently, market planning in the absence of data is not easy and incorrect decisions leading to unsuccessful business ventures are common.

In the fertilizer sector one alternative would be the formation of a Fertilizer Association of Malawi

Action Plan Matrix 2. Finance

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
1. Limitations on Credit Funds								
(a) Inadequate locally available foreign exchange for input importation, particularly during the critical import financing period April to June.	(a) Review of macro-economic policy to secure availability of US $65-$80 million per annum for purchase by importers of fertilizer, seed and CPPs to maintain food security programs and generate continuing export crop production.	(a) MOAI to raise with National Economic Council for MOF, RBM, and IMF review. Donors/GOM to ensure continuing availability of US $65-$80 million in balance-of-payment support	X	X	X	X	X	X
(b) Commercial/merchant banks lend limited foreign exchange to existing customers. New entrant small- and medium-sized importers without track record unable to compete due to stringent loan conditions on up-front contributions and collateral.	(b) Establish Agricultural Inputs Importation Fund (AIIF) (US $5 m in Year 1, US $10 m in Year 2) in interest-earning foreign account. Use to train bankers and potential new entrant importers selected on basis of experience and good credit record in all aspects of inputs marketing and financing to establish lender/borrower trust. Selected trained new entrant borrowers to provide 30% up-front MK contribution. Banks will lend 70% financing need. AIIF to guarantee loan. Default risk to be shred 50:50 by banks and AIIF. Loans to be limited to US $1.0 m per client per season.	(b1) Donors to provide US $15 m AIIF and set up project and, with MOAI and Bankers' Association of Malawi participation, select external organization to handle all training. (b2) Foreign bank to hold AIIF. RBM to manage use of AIIF. (b3) Commercial and merchant banks to provide all required lending services.		X X X	X X X	X X X	X X X	X X X
(c) Local traders unable to obtain credit	(c) Establish Agricultural Inputs Business Development Fund (MK 100 m)	(c) Donors/GOM to provide counterpart funds held as MK with RBM		X				
(c1) Existing and new entrant small traders and potential dealers unable to obtain credit for agricultural input trading due to bank-perceived high risks and related stringent security/collateral requirements.	(c1) Train existing and new dealers in inputs marketing and business management. Selected trained graduate borrowers to provide 25% up-front payment. Banks to loan backed by a guarantee facility and reduce collateral requirements — maximum loan size: MK 0.2 m loan.	(c1) Project to use external training organization selected for AIIF and local institution to handle all training for lending institutions staff and dealers. Lenders to use own funds, reduce borrower collateral requirements proportionately, and share risk 50:50 with AIBDF.		X	X	X	X	X

Action Plan Matrix 2. Finance

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
(c2) Petty traders unable to obtain micro-loans from DFIs and NGOs to expand services.	(c2) Train MRFC and NGO staff in agricultural inputs, petty trading, & financing. Expand MRFC and NGO lending programs to include more agricultural inputs petty trading. Provide supportive petty trading loans to groups using existing group member joint liability guarantee mechanisms.	(c2) Local training institution in c1 above to provide training. MRFC to use own funds for lending with AIBDF guarantee. NGOs to use AIBDF funds		X	X	X	X	X
2. Poor Financial Service Outreach								
(a) High interest rates depress demand for credit services Agricultural lending not profitable. Higher returns available on Treasury Bills and non-agricultural urban lending.	Macroeconomic measures to reduce inflation and interest rates.	MOAI to raise with National Economic Council for review by MOF, RBM and IMF.	X	X				
(b) Poor cash security. Lack of essential cash depositories and cash transit services in rural areas. Few bank and DFI branches and agencies in rural areas due to low levels of demand for credit.	Undertake special study on how to encourage commercial banks and/or MSB to provide more financial depositories and cash transit services in outlying rural areas and most appropriate financing system through grants/tax concessions. Encourage private security arrangements. Introduce as a special project.	MOAI to raise with National Economic Council. Special Study to be managed by MOF and RBM. GOM to finance with donor support if required.	X X	 X	 X	 X	 X	 X
(c) MSB expanding deposit taking services, while MRFC & SEDOM need source of rural financing. High operating cost of separate rural outlets prevents maximization of operational efficiencies.	Use of MSB funds as additional source of lower cost finance for MRFC and SEDOM lending programs. Consider merger in longer term of MSB with MRFC and SEDOM leading to operation of a more cost-effective outlet network	Donors to continue financing of studies through Privatization Commission and assist with implementation.	X	X 	 X	 X	 X	 X
(d) Farmers' inability to repay due to poor market prices and lack of linkage to possible markets.	Lending institutions to become more involved in linking borrowers to markets offering agreed or contracted minimal floor prices and specified quantitative needs.	All Lending Institutions. Bankers' Association of Malawi.	X	X	X	X	X	X

Action Plan Matrix 2. Finance

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
3. Continuing High Levels of Willful Default Affecting All Lending Institutions								
(a) Inadequate political will to act nationally	Political leaders and traditional authorities to promote loan repayment and discourage fraud. Financial Institutions to establish a Task Force to push coordinated action program	All political parties to include in their policies. Task Force to include Bankers' Association of Malawi, DFIs, APIP and RBM and Attorney General's Dept.	X	X	X	X	X	X
(b) Absence of a national identity card system	Accelerate the establishment of a national identity card system, complete the investigation of contract by Anti Corruption Commission, and cancel or re-award contract.	Anti Corruption Commission, Attorney General's Department.	X	X	X	X	X	X
(c) Absence of Credit Reference Bureau (CRB)	Continuation of planning and establishment of CRB within APIP Trust/APIP Finance Co. as a commercial service available for access by all lending institutions.	EU to finance. APIP Trust to operate.	X	X	X	X	X	X
(d) Fraudulent marketing of tobacco by borrowers through other accounts avoiding loan repayments contracted to be covered through stop orders.	TCC to issue production and intermediate buyer licenses under a single license number for individuals, and for groups including all individual ID details. AHL to open only one sales account for each license and cross-reference licenses held by close family members.	MOAI/TCC/AHL.	X	X				
(e) Ineffective court procedures and actions against convictions by Sheriffs' Courts.	Review and action in updating and increasing operational efficiencies	Donor support for review and implementation of recommendations. Attorney General's Department and Task Force	X	X X	X	X	X	X

with membership including importers, distributors, and even retailers. In addition to various other responsibilities, the secretariat of the association would also work to maintain a bank of data collected on a periodic basis (e.g., monthly) from all members on a standard data sheet. Typically, this would not include confidential data or information such as companies' prices, sales plans, or costs. Rather the data collected would include, for example, sales of fertilizers by products, by months, by extension planning areas (EPAs) or rural development projects (RDPs), stocks, and imports made from various sources. This could be collected by the middle of each month and circulated to all the members soon after to allow them to be in a position to properly plan their activities. The association would also keep a close tab on the international markets using the Internet and various fertilizer trade journals. In addition, the association could develop linkages with other similar associations in and outside the region for the exchange of data and information. The association could also collect useful data and information on agriculture in Malawi and within the region (for comparative purposes).

Until such an association is well established and active, the MOAI or the Agricultural Policy Research Unit (APRU), working as an Agri-Input Development Center of Malawi, should perform all the data collection and processing activities described above and disseminate the information periodically (e.g., before the end of every month). Such information should also be available on the seed and CPP markets. This is an activity that needs to be set up as soon as possible in order to improve planning efforts and, thereby, the all-round development of input markets.

III.6. Implementation of Regulatory Systems

As discussed earlier, existing regulations for seeds and fertilizers are suitable for competitive inputs markets. However, some changes can be suggested to facilitate market development. In the area of seeds, Malawi does not yet have the legislation allowing breeders or companies to claim plant variety protection (PVP) for their new varieties. Also, Malawi does not have regulations and procedures in place to deal with gene-modified organisms (GMOs). What is required are procedures to (a) evaluate risks and approve GMOs for field tests, (b) evaluate risks and approve GMOs for general agriculture, (c) evaluate risks and approve GMO products for food and other uses, and (d) patent or otherwise protect intellectual property rights in GMO products. With the expected expansion of GMO products in agriculture over the next 5-10 years, this is an area that calls for urgent attention.

Another obstacle to development of the seed market in Malawi is the current law that requires that all new maize hybrids be officially approved before seed sale is allowed. This raises costs for and slows introduction of new private maize hybrids from regional breeding. One way to remove this obstacle is to automatically accept hybrids approved in any regional country (e.g., as in the EU); another solution is to waive official controls on introduction of new varieties for all crops (e.g., as in India, Australia, the United States, and many other countries).

Another area of concern is that government is not prepared to enforce truth-in-labeling at the retail level. Although there is no evidence that fraud or unintentional mislabeling has been a serious problem, improving reliability of market information is nevertheless an issue as markets develop. For fertilizers, many retail dealers have scales to weigh bags before sale. However, there are no arrangements for collecting samples for laboratory tests or for reporting test results and redressing farmer losses if nutrients are not as reported on labels. Another risk in fertilizer markets is that someone may use another's bags or labels to sell substandard products. MBS has a laboratory. What seems to be required is that MOAI develop procedures and assign staff to accept and respond to complaints from farmers and other companies to observe retail sales and to collect samples to send for tests. For seeds, Seed Services already has a presence throughout Malawi and can be tasked to accept complaints and to spot check seed at retail levels. What seems to be required is development of some procedures and assignment of some staff time to test these procedures for a year or so before settling on a more permanent solution.

For CPPs the entire regulatory framework for registering new products, licensing importers, licensing dealers, and supervising trade and use has not yet been developed. All of these duties will be defined in regulations depending on the draft Pesticides Bill, which is expected to become law sometime in 2000. Over the next several years it will be necessary to recruit and train new staff and then also work with pesticide companies to arrange workable pro-

cedures to implement regulations. Special effort will be required to train and register retail dealers to reach CPPs into rural areas for small farmers. An area of pesticide regulation that is often overlooked in developing countries but deserves significant attention is testing of residues in food crops (especially vegetables, milk, and meat products) for local use. MBS currently tests residues in tobacco for export but ignores risks and health damage that residents suffer from residues in locally produced food.

To protect public health and minimize environmental risks, the regulations should provide an incentive for promoting the use of easier, less expensive, and lower risk biopesticides with appropriate risk tests. Addressing these health concerns through regulations is well served with residue testing on food products; intensification of research and extension on bio-control and IPM (crop rotations, pheromones, biological control, biotechnologies [BTs], and biopesticides); the development of user-friendly, less expensive, smaller, and lower risk packages of CPPs; public education; and the strengthening of the capacity of health services to deal with cases of pesticides poisoning.

III.7. Technology Development and Transfer Activities

To keep pace with the increasing demand for food triggered by a rapidly increasing world population, agriculture has made remarkable progress over the years and especially in the past 50 years with assistance from science and technology. Since the demand for food and other agricultural products continues to grow, there is a need to continue to develop appropriate technologies and make them available to the farmers. While the majority of farmers in Malawi are generally aware of fertilizers and other inputs and have used them, farmers' knowledge regarding the importance of high-analysis fertilizers, the economics of fertilizer use, balanced use of organic and inorganic materials, balanced nutrient use, quantity and timing of fertilizer use, importance of good quality seed, crop protection methods, etc., is limited. As a result, yields of most crops in Malawi are below the attainable levels (48%-75% yield gaps) and world averages. On the other hand, agro-climatic conditions are quite favorable in Malawi for a significant improvement in yields through improvements in the agricultural practices and greater and proper use of modern technology.

The efficient use of all inputs, including fertilizers, seed, and CPPs, is becoming increasingly important with higher input prices. From a technical point of view, improvements in the proper application of fertilizer (e.g., proper timing) will be beneficial to farmers. From an economic point of view, farmers are unaware of the higher prices they are paying for the nutrients when using the low-analysis fertilizers such as CAN, AS, single superphosphate (SSP), and some of the compounds, against the price of the same nutrients in the high-analysis fertilizers such as urea, DAP, and MOP. Proper and balanced use of these high-analysis fertilizers, other secondary and micronutrients, and organic matter based on site-specific soil tests is therefore necessary to ensure the cost-effective use and optimum yields. There is no widespread practice of testing of the soils of the farmers' fields in Malawi. Knowledge of the use of improved varieties of seed and CPPs is also limited, particularly among smallholders.

Some researchers have concluded that the soils in Malawi are rich in phosphorus; consequently, farmers do not have to apply phosphate fertilizers. But at the same time, limited soil tests have indicated that P levels are generally low in the soils. Hence, if farmers apply a small quantity of phosphate fertilizers, it is possible that P is absorbed by the soil. MOAI should fund research on this crucial aspect of P dynamics so that the soils of Malawi do not get completely depleted of phosphorus.

Malawi has abundant resources of phosphate rock (PR). Because PR is of low reactivity, it cannot be used for direct application. However, PR can be compacted with SSP or triple superphosphate (TSP) for use in farmers' fields. Research on agronomic response of crops to compacted PR should receive priority in future work.

Malawi's heavy dependence on tobacco for export earning is nonstrategic. To promote diversification in export crops, GOM should consider promoting the use of DAP for basal dose and urea for topdressing for maize cultivation followed by groundnuts or pulses (both of these commodities seem to have good export potential). These crops can use residual P from basal application of DAP and fix their nitrogen requirements from the atmosphere. The country can benefit from additional export earnings at no additional nitrogen cost. While promoting the use of DAP, attention should be paid to

correct sulfur deficiencies wherever and whenever necessary.

The research being done at the government centers and by some private institutions like ARET, especially related to maize and tobacco, appears adequate for the development of seed varieties, proper levels of input uses, and agricultural practices. This knowledge not only needs to be transferred to the farmers but also should be developed for other food and cash crops to broaden and diversify the country's agricultural base. In addition, since agriculture in Malawi is dependent solely on a unimodal rainfall pattern (one season), research on water conservation methods in farmers' fields should be supported to explore the feasibility of a second crop on residual moisture. For these efforts to be undertaken, the government will have to allocate additional resources for research since the present funding is inadequate. Additionally, new varieties would also be introduced through the development of new seed enterprises and harmonized and liberalized seed policies (as explained in Section III.8).

Activities related to the transfer of technology should be stepped up. The government's extension activities, which in the past had done a good amount of work in introducing seed varieties and input use, have slowed down considerably in the last 4 years due to the lack of funds. A number of NGOs such as Sasakawa-Global 2000 (SG 2000); NASFAM; Action Aid; World Vision; and some private sector organizations like National Seed, Pannar, Norsk Hydro, Chemicals and Marketing, Dwango Sugar Mills, and ARET are doing good work in bringing modern agricultural technologies to farmers through demonstration plots, farmer meetings, distribution of technical literature, etc. Some of these organizations, especially the NGOs, use the field assistants (FAs) from the government extension service for specific assignments. However, since there are over two million farming families spread all over the country, this activity does not reach many farmers and as a result has not achieved the expected impact.

In addition to strengthening extension activities, efforts should be made to promote dealers as new change agents. Such dealers are closer to farmers, have self-interest in promoting new technologies, and can reduce the fiscal burden on the MOAI, thereby allowing it to devote its limited resources to priority research areas.

The extension messages should be communicated through demonstration, field days, and farmers' meetings at the village and plot levels, mobile soil-testing laboratories developing site- and crop-specific recommendations, distribution of technical leaflets and brochures, and use of the print and electronic mass media.

III.8. Stimulating the Development of Seed Enterprises

A significant challenge for seed industry development is to encourage the entry of small and medium seed enterprises able to identify new varieties of interest to farmers, import and/or produce seeds, and market new varieties. Seed production is not a problem since that can be contracted with farmers at about 20%-30% above grain price (more for hybrids). Unlike fertilizers, new entry into the seed market takes time and is knowledge intensive rather than capital intensive. Although some money is involved and can be a serious constraint, it is not the determining factor in market entry and expansion.

Seed companies compete by offering farmers a list of performing varieties. Some of these may come from local public research, but most of them for many crops will come from private research in other countries. Only a very few foreign companies with good varieties will establish joint ventures or subsidiaries in Malawi—aside from the three main hybrid maize companies already in the market, there may be no more. Most seed bred by foreign companies will enter the Malawi market through locally owned companies that field test and then license varieties that will sell in Malawi. There may over time be 20-40 Malawi companies introducing foreign-bred varieties from as many as 100 companies.

In many cases, companies will simply import and distribute seed. This is what we can expect to happen for vegetable seeds with enormous gains for Lilongwe consumers, vegetable farmers, and possibly exports. In other cases, such as wheat, millet, and groundnuts, companies will license foreign cultivars, import breeder seed, and produce seed in country for Malawi and possibly other regional markets. This pattern of market development involves an enormous amount of new entry for small and medium enterprises (SMEs). Scientists, rural entrepreneurs, or other product exporters looking to improve prod-

uct supply, etc., may establish companies.

Some seed production and trade can develop on the basis of varieties released from public research institutes, such as MH18 hybrid maize, CG7 groundnuts, etc. Currently, access to breeder and foundation seed for these varieties is erratic. In some cases, research institutes give out seed at no cost, but in other cases, institutes charge for seed or refuse requests. To encourage private companies to produce seed from public varieties, research institutes should create an orderly market and reliable supply for breeder and foundation seed. Publishing and distributing a price list for breeder and foundation seed for all public varieties can help in the development of the seed market. For varieties eligible for PVP, such as two out of three parent lines for MH18, the research institute could sell seeds with a contract that limits use so that varieties do not enter the public domain.

Current seed production costs in Malawi are inflated by government contracts that are unnecessarily generous. Commercial companies report that seed production costs are somewhat higher than in Zimbabwe (e.g., $310/mt versus $240/mt in Zimbabwe), but some of this difference may reflect limited competition: currently about half of all commercial seed is produced by Press Agriculture, when smaller estates may be more competitive for seeds (as for tobacco). If tobacco sales fall, a modest devaluation could position Malawi as an attractive alternative for Zimbabwe as a source for satisfying seed export contracts. Capacity for processing seeds is already in place far beyond what is currently used for the Malawi market.

Specific efforts are required to encourage the entry of new seed companies to import or process seeds from domestic production with particular attention to secondary field crops, such as pulses, rice, potatoes, cotton, beans, oilseeds, and others. For many of these crops, seeds are nonhybrid so that marketing margins are going to be small. We can expect that most commercial seed may be sold at 2-2.5 times grain price. Seed sales for OPVs can also be maintained by continuously introducing new varieties with characteristics that farmers and markets value.

Over the last decade, government and donors have supported local seed production through small farmers and estates, but seed from these projects have not gone into stores. Instead, government, projects, and NGOs have bought and distributed most of this seed outside of commercial channels. Hence, despite many good efforts, seed production is not linked to market mechanisms and is therefore not sustainable. Efforts should be made to assist entrepreneurs (scientists, seed farmers, others) to develop seed enterprises, buying seed from farmers, packaging it with a brand name, and distributing (selling) it to retail outlets for farmers to buy. Currently, the United States Agency for International Development (USAID), with Iowa State University and Purdue University, is preparing a project to assist the small seed growers. Similar projects should be initiated to support the development of seed enterprises.

III.9. Integration of Regional Markets

For all of the inputs in this study, Malawi's market taken alone is too small to generate enough market entry and competition to ensure that Malawi's farmers see the best available technology in the world at the lowest possible (unsubsidized) prices. Seed companies, for example, weigh potential sales against costs to test and introduce new varieties. When expected seed sales are low, there may be no companies interested to locate and import new lines from breeding around the world that may be adapted to Malawi (e.g., from countries at similar latitudes such as Brazil, India, Australia, and Mexico).

Similarly for fertilizers, Malawi's national market taken alone is too small to allow multiple high-volume, low-cost importers to compete. Fertilizer import from low-cost world markets (e.g., in Eastern Europe) is significantly lower for shipments of 15,000-30,000 mt at a time for a single product. However, only one or two shipments of that size can be absorbed in Malawi's market for urea or other major product, and this does not allow enough companies to import and compete. Although several companies are able to bring in fertilizer at low cost, most other companies in the Malawi market import relatively small volumes of high-cost fertilizers from South Africa. Hence, these markets are based on low volumes, high transport costs, and relatively high cost South African source.

The concept of regional markets envisions a situation where input companies and traders are able to operate across regional borders, test-

ing and delivering inputs based on agroecological zones and market demand, without regard to political boundaries. For seeds, development of regional markets depends on changes in regulations allowing seed companies to move varieties and seeds from one country to another with a minimum of government controls—e.g., allowing companies to introduce new varieties without controls and focusing seed import controls in science-based phytosanitary concerns. For fertilizers, development of regional markets depends on (a) governments accepting the same packaging, (b) governments accepting all fertilizer compounds or compositions in the region, and (c) governments waiving or revising regulations about preshipment inspection to allow shipments coming into a main port (e.g., Beira, Dar es Salaam) to be approved for sales throughout all relevant countries in the region, so that companies are able to distribute and even redistribute based on demand as it develops throughout the season.

Initiatives for harmonizing seed regulations are under way from 1999 through the Southern African Development Community's (SADC's) Crops Sector Coordinating Unit and from 2000 through a World Bank project for Mozambique, Malawi, Zambia, and Zimbabwe. Initiatives for harmonizing pesticides trade have been underway from 1996 through Southern and Eastern Africa Regulatory Committee on Harmonization (SEARCH). For fertilizers, there have so far been no initiatives to review regulations, pre-shipment inspection, and other rules to facilitate a regional market though such issues would seem to be much easier than for seeds or pesticides.

For fertilizers regional markets can cut costs by allowing more large-volume, low-cost imports and can also cut costs by allowing traders to move fertilizers across borders from time to time based on supply and demand conditions that develop over a season (e.g., between Zambia and Malawi near Chitipa or between Malawi and Tanzania near Karonga). Government can facilitate the development of regional fertilizer markets by reviewing and revising regulations and rules about pre-shipment inspection, as already discussed. Special efforts should be made to integrate AIMs in the M-Z-M Triangle (Malawi-Zambia-Mozambique) and Zimbabwe.

Regional seed markets can be expected to develop on the basis of companies already in the region and new companies, many of which will have or develop links with breeding companies from outside the region. Seed companies, such as Pannar and Seed Company from regional countries with the strongest seed industries—Zimbabwe, Kenya, and South Africa, can be expected to expand throughout the region. In addition, many strong EU and U.S. companies are not yet represented in the region, and many other companies from countries with strong seed industries and similar latitudes—India, Australia, Brazil, Thailand, Philippines, and Mexico—may also offer new varieties. In most cases, local companies will represent these varieties with contractual links to the foreign breeding company.

Ongoing initiatives to harmonize regulations—moving towards free movement of varieties throughout the region and almost free movement of seeds (except for modest duties and reasonable phytosanitary controls)—can support development of the regional seed industry. Other activities that could support regionalization of the seed industry include assisting seed entrepreneurs to visit seed companies in Zimbabwe, Kenya, and India (especially Hyderabad and Bangalore) and public research stations such as the International Center for Research in Sub-Arid Tropics (ICRISAT) and the International Institute for Tropical Agriculture (IITA) in Zimbabwe (Bulawayo) and Nigeria to make contacts to access new varieties and to establish mutually beneficial business linkages. Further support could include coordinating private trials, assisting with a newsletter or magazine, etc.

Malawi currently has a national Pesticide Suppliers Association but lacks national trade organizations for fertilizers and seeds. Once organized, seed and fertilizer organizations can play a role in channeling training and other assistance to dealer development, organizing regional tours, sponsoring newsletters, organizing national and regional workshops and trade expositions, etc. Projects can be designed to support trade organizations and to work through them to assist national and regional trade and industry development.

III.10. Action Plan Matrices for Seed, Fertilizers, and CPPs

In addition to the market development efforts proposed earlier, there are certain input-specific measures that should be undertaken to develop input markets. Action Plan Matrices 3, 4, and 5 summarize such

measures for seed, fertilizer, and CPP markets, respectively.

III.11. Potential Benefits of the Action Plan

If the *Action Plan* is implemented as proposed, the following socioeconomic benefits will result from its implementation.

Lower Prices and Timely Availability of Inputs—The most significant benefits of the *Action Plan* will be lower prices and timely availability of inputs in rural areas. Inputs will be available to farmers near their farms. The distances currently traveled by farmers to purchase inputs will be drastically reduced because the new cadre of dealers will be located much closer to the villages. It is possible that input prices for seed and fertilizers may decrease by 30%-40% (Table 4). Reduced cost of transportation and travel by farmers will provide an added benefit.

Better Access to New Technologies—As more input companies enter the market with new crop varieties, CPPs, and soil tests and treatments, Malawi's farmers will have better access to a full range of seed and other technologies necessary for a diversified and productive agricultural sector.

Enhanced Food Security—Increased use of modern inputs will help in promoting food security at both the household and the national levels because farmers will be producing more grains and legumes. Economic and efficient use of inputs by more farmers will certainly contribute to national granaries. Even the resource poor farmers will be able to increase their crop production by using inputs in larger quantities.

Environmental Protection—The soils that feed the nation are the most important natural resources of Malawi. These natural resources should be sustained and preserved for future generations. This can happen only when the nutrients removed from the soils are adequately replenished and reserves of nutrients are built in the soils. By promoting the increased use of mineral fertilizers and soil fertility-enhancing practices, the *Action Plan* will contribute to the protection of the natural resource base.

Foreign Exchange Earnings and Savings—Malawi has a chronic deficit in its balance of payments account. The *Action Plan* will contribute to reducing this deficit by enhancing the foreign exchange earnings through export promotion and food import substitution. By diversifying the cropping pattern toward legumes and groundnuts, the *Action Plan* will help in reducing reliance on only one commodity (tobacco) for foreign exchange earnings.

Table 4. Expected Price of Inputs With Well-Functioning Inputs Markets

	Current Prices (MK/50 kg)	Expected Prices (MK/50 kg)	Difference (%)
Urea	795	599	-25
SA	625	472	-24
Seed (MH 18)	60[a]	40[a]	-33

a. Per kilogram.

IV. Implementation Arrangements

IV.1. Holistic Approach and Sequencing of Activities

To realize the full benefits of the activities proposed in the *Action Plan*, these activities should be implemented in a holistic manner so that the synergies of various activities could be captured. Activities in policy reform and human capacity building should be supported by developments in the financial sector, market information, and monitoring and regulation in the marketplace. Without financial resources, trained entrepreneurs cannot put their training to work. Likewise, rules and regulations about truth-in-labeling should be fully enforced so unscrupulous traders do not compromise the quality of the products sold by law-abiding traders. To integrate various segments of the market efficiently, these traders should also have access to the information about national, regional, and global markets.

Although a holistic approach is recommended to develop input markets, sequencing of activities is also suggested because both human and financial resources are limited and certain activities should be undertaken in a priority manner. For example, unless the dealers are properly trained and well versed in the nitty-gritty of import business, there is no point in making finance available to them. Likewise, with-

Action Plan Matrix 3. Seed

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
1. **Government-supported programs in seed distribution:** Government procurement and distribution of commercial seed obstructs market development (new entry for companies, varieties, dealers) and gives farmers seeds of varieties and even crops that they may not want.	(1a) Establish a task force to develop a program and timetable to design and introduce cash equivalent vouchers (that farmers can use to buy only seeds and fertilizers of their choice from dealers of their choice) to replace all government distribution of seeds in-kind.	MOAI and donors that fund GOM procurement of seeds.	X	X	X			
	(1b) Clear policy statement that Government will move from direct procurement and in-kind distribution to cash equivalent vouchers for all input assistance programs.	MOAI and donors (USAID, EU, DfID, World Bank)		X				
2. **Lack of seed regulations compatible with international practices:** Although Malawi's existing seed regulations are sound, some regulations are lacking or needing revision to assist Malawi's seed companies to take part in the international seed industry.	(2a) Establish plant variety protection (PVP); draft and approve a new law and regulations, and establish an office to award PVP	MOAI, with technical (legal) assistance from a donor project	X	X				
	(2b) Establish regulations to allow patenting of selected biotechnology, to supervise GMO field testing, to supervise introduction of GMOs in agriculture and to supervise marketing of agricultural products with GMO content	MOAI, patent office, and bureau of standards, with support from one or more donors		X	X	X		
	(2c) Establish and/or maintain membership in OECD Seed Schemes, International Seed Testing Association (ISTA), FAO's Interim Commission on Phytosanitary Measures and other international organizations dealing with seeds.	MOAI, with assistance from a bilateral donor to cover several years' annual fees.	X	X	X	X	X	X

Action Plan Matrix 3. Seed

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
2. **Lack of seed regulations compatible with international practices:** (Continued)	(2d) Harmonize seed quality and phytosanitary rules among SADC countries. Adjust variety controls to facilitate introduction of varieties approved in regional countries.	MOAI takes part in regional discussions and adjusts regulations and procedures based on agreements	X	X	X	X	X	X
	(2e) Strengthen staff, laboratories, and arrangements for Seed Services to monitor and test truth-in-labeling for seeds in retail trade.	Seed Services, with support from a donor project.		X	X			
3. **Weak International Linkages:** Malawi's seed industry is not well linked to regional and international seed industries (for access to new varieties and seeds, seed trade, etc.).	(3a) Establish a national seed trade association, which then joins AFSTA, so that Malawi seed companies can take part in international and regional seed industry meetings and affairs.	Seed companies in Malawi, with possible assistance from a bilateral donor.		X	X			
	(3b) The national seed association collects and publishes information on Malawi and regional seed companies and markets and advises government and donors on seed-related issues.	National seed association, with grant or contract support from a bilateral donor or other project.		X	X	X	X	X
	(3c) Entrepreneurs visit foreign countries to make contact with private and public breeding organizations for access to new varieties	Entrepreneurs share expenses with government and/or NGO program to promote new seed companies.		X	X	X		
4. **Limited Number of Seed Companies in the Market:** Limited number of seed companies in the market, hence limited number of varieties (from local, regional, and international public and private breeding) and limited competition.	(4a) Entrepreneurs establish seed companies (including joint ventures and stand-alone companies) to import and/or produce, bag, label, and distribute to retail outlets.	Entrepreneurs invest in seed, office, etc. Government and NGOs may design programs to provide technical and/or financial assistance to new seed companies. Existing programs—e.g., credit programs to support small businesses, MIPA—may assist.	X	X	X	X	X	X

Action Plan Matrix 3. Seed

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
4. **Limited Number of Seed Companies in the Market** (continued)	(4b) Establish and announce price list and procedures for anyone to buy breeder and basic seeds for all varieties of all crops released from Malawi's public research institutes. (If breeders' rights are an issue, protect through PVP and/or contracts with royalties and limits on use of seeds.)	Department of Agricultural Research and Technical Services, MOAI	X	X	X	X	X	X
	(4c) Government and NGOs design projects to offer temporary technical or financial assistance to emerging seed companies, which could include matching grants for employing breeders, demonstrating new varieties, assisting with seed processing machinery, etc.	MOAI, NGOs, donors	X	X	X	X	X	X
	(4d) National seed association, with assistance from Seed Services and other government and NGO projects, offers training for contract farmers, especially small farmers, engaged to produce seed for commercial seed trade.	National seed association, MOAI, NGOs, and donors.		X	X	X	X	X
5. **Insufficient Dealer Outlets:** Farmers lack convenient access to commercial seeds through town and rural stores (currently, maize, tobacco, and vegetable seeds are widely available in town stores; other seeds not available)	(5a) Existing stores, including stores in remote rural areas, add seeds to their shelves; new stores open to sell seeds and other inputs	Entrepreneurs invest money and time to carry seeds.	X	X	X	X	X	X
	(5b) Regional workshops and training for store managers and other traders interested in selling seeds and other inputs, including introductions to seed companies and distributors	The national seed association, MOAI, and/or NGO field days and programs to interest and train seed traders and dealers.		X	X	X		
	(5c) A government or NGO project could offer other temporary incentives for stores to add seeds (other than hybrid maize) to their shelves.	MOAI, NGOs, donors.		X	X	X		

Action Plan Matrix 3. Seed

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
6. Farmers Have Insufficient Information about New Varieties: Farmers lack information about new varieties for all crops (hybrid maize, other crops)	(6a) Big increase in number of demonstrations for all crops for which commercial seeds are available. Demonstrations should also be in remote rural areas, not only along major roads.	(6a-1) Seed companies arrange more demonstrations. Seed companies should also extend technical backup to farmers and stores selling seeds. (6a-2) MOAI and NGOs cooperate with seed companies to demonstrate selected promising varieties.		X	X	X	X	X
	(6b) Preparation and distribution of a list of varieties tested and recommended, with relevant information for farmers.	Department of Agricultural Research and Technical Services, MOAI		X	X	X	X	X

Action Plan Matrix 4. Fertilizers

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
1. Market Uncertainties Due to interventions with APIP and Starter Pack, private sector hesitation on additional or fresh investment in the business.	(a) A clear fertilizer policy statement is required.	MOAI to issue revised fertilizer policy.	X					
	(b) Make all interventions market friendly, i.e., ensure that they do not disturb the market.	MOAI/donors/private sector coordinate market friendly interventions for providing safety net and move from tenders to vouchers.		X	X	X		
2. Level Playing Field Public sector organizations (ADMARC and SFFRFM) have sunken costs in substantial storage facilities and transport equipment.	Parastatals should charge full costs to fertilizer marketing operations by commercializing activities.	MOAI to ensure level playing field for all	X					
		MOAI phased program for privatization of parastatals	X	X	X	X		
3. Inadequate Finance Available Existing players and newcomers have problems in obtaining foreign exchange for import LCs and financing for marketing operations. Collateral requirements, interest high.	(a) Develop progressive commercial package to encourage greater competition among private sector operations. Examine possibility of joint ventures with international organizations to attract foreign investment.	RBM/commercial banks/GOM to develop suitable package.		X				
	(b) For initial period have special fund set up to encourage commercial banks' involvement.	Donors to provide financing for two funds: the Agri-Input Import Fund and the Agri-Input Business Development Fund.		X	X	X		
	(c) Develop dealer network to bring in finance and share risk.							
4. Banking Services Not Available in Rural Areas (a) Rural trading activities have not developed as there are no bank branches to facilitate business transaction	(a) Encourage private banks to open agencies/ outlets in rural areas by providing tax incentives, etc.	RBM/commercial banks/GOM to develop suitable policy package	X	X				
(b) Security risks high.	(b) Encourage private security arrangements.	GOM/banks to work out arrangements.	X	X				

Action Plan Matrix 4. Fertilizers

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
5. Inland Road Freight Rates Are Very High Due to poor roads in rural areas leading to high maintenance costs and high import duties on truck spares/fuel, road freight unusually high.	(a) Give priority to install rural road infrastructure by reputable contractors. Comprehensive road maintenance plan.	GOM/donors to undertake rural road projects	X	X	X	X	X	
	(b) Reduce import duties on truck spares and liberalize petroleum imports.	GOM to review import duty structure and policy on petroleum imports.	X	X				
6. Limited Fertilizer Availability in Rural Areas Due to absence of local independent dealer, supplies do not reach remote areas and farmers have to travel 10-50 km to purchase.	(a) Develop dealer network (b) Encourage rural trading activities by providing business training and improved access to finance	Donors to provide funds for financial package and training for developing rural markets.		X	X	X	X	
7. High Cost of Fertilizer Imports (a) Due to inadequate linkages with international markets, importers do not take advantage of low-cost supply sources.	Training program for developing linkages with international markets.	Donor funding required to send people for training.	X	X	X			
(b) Small shipments lead to higher product prices and higher per-mt ocean freight.	Organize informal groups—farmer associations/ harmonize regional trade to import joint larger parcels of high-analysis fertilizers and reduce costs.	GOM/donors to work towards regional trade harmonization.		X	X			
(c) Closest seaports are at Nacala, Beira, Dar es Salam requiring expensive land transportation.	Develop seaports and rail and road connections to facilitate fertilizer imports in a landlocked country	Donors to undertake projects to improve rail/road links to ports		X	X	X		
8. Improper/Uneconomic Use of Fertilizers (a) Farmers have inadequate knowledge of proper and balanced use.	Intensify field extension activities-demonstration plots, farmer meetings, use of mass media.	Donors to fund extension project coordinated by MOAI and with contracted management. Encourage private sector involvement.		X	X	X	X	X

Action Plan Matrix 4. Fertilizers

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
8. **Improper/Uneconomic Use of Fertilizers** (continued)								
(b) Far too many products, many of which are low analysis with higher nutrient costs.	Switch to high-analysis fertilizers.	Extension message	X	X	X			
(c) Require basis for determining site-specific fertilizer recommendations.	Set up soil testing facilities for farmers and dealers. Continued research on phosphate, liming, micronutrient, organic matter, timing of application, and tillage response.	Donors to fund extension project coordinated by MOAI and with contracted management.		X	X	X	X	X
9. Market Planning and Decision Making Difficult Market information systems/data inadequate for proper planning.	(a) Set up fertilizer cell in MOAI to collect, analyze, and disseminate data.	MOAI to set up with private sector involvement	X	X				
	(b) Set up a monthly meeting of MOAI, private and public sector fertilizer organizations for planning and review.	MOAI to form suitable committee including private sector	X					
10. No Monitoring in the Market There is no monitoring of the truth-in-labeling law either for quantity or quality	Set up cell in the Malawi Bureau of Standards to undertake routine inspection/testing and strengthen existing labs.	GOM to set up cell Donors to fund establishment of special labs.		X	X			

Action Plan Matrix 5. Crop Protection Products (CPPs)

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
1. Uncontrolled status of the pesticides market.	(a) Urgent enactment of the draft Pesticide Bill 2000.	Dr. A. Daudi (Crop Protection Department, MOAI), FAO, GTZ, and the Pesticide Suppliers of Malawi (PSAM) to revamp the existing IPM Task Force at a meeting scheduled on May 21, 2000, in the FAO premises. The Task Force should enlist the involvement of WHO and other necessary stakeholders to actively campaign for the enactment of the draft Pesticide Bill 2000 in the next session of Parliament.	X					
		GOM and Parliament.	X					
	(b) Drafting supporting pesticide regulations.	Public-private partnership (as was done for the Pesticide Bill 2000).	X					
	(c) Approving the drafted supporting pesticide regulations.	MOAI	X	X				
	(d) Establishing the Pesticide Control Board (PCB).	(d.1) MOAI to design the chairman of the PCB as per the draft Pesticide Bill 2000.	X					
		(d.2) PCB members to nominate alternate board members (optional) as per the draft Pesticide Bill 2000.	X					
		(d.3) PCB to appoint the registrar and establish its secretariat as per the draft Pesticide Bill 2000.	X					

Action Plan Matrix 5. Crop Protection Products (CPPs)

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
1. Uncontrolled status of the pesticides market. (Continued)	(e) Recruiting and training inspectors.	PCB appointments as per the draft Pesticide Bill 2000. MOAI and PCB to train inspectors as per the bill.	X	X	X	X		
	(f) Establishing a fund for the initial operation of the PCB	GTZ is willing to provide the necessary funding, provided draft bill is enacted into law during the first half of 2000. Otherwise, other donors can help in securing necessary funding.	X					
	(g) Strengthening product analysis and quality control.	(g.1) MOAI to publish a list of designated analysts and suitable laboratories.	X	X	X	X	X	X
		(g.2) MOAI and donor to provide in-country short-term training for product analysts.		X	X	X		
		(g.3) PCB to assess MBS laboratory capability, and donors to finance its reinforcement if needed.	X	X				
2. Substantial obsolete and dangerous stocks.	(a) Extending the survey of obsolete pesticides in the northern and central regions.	Dr. A. Daudi (Crop Protection Department, MOAI) to complete the survey he started as soon as funding (US $2,000-$3,000) is available.	X					
		MOAI and revamp IPM Task Force to take up this issue and raise the necessary funding.	X					
	(b) Disposing of existing stock.	Revamp IPM task force to take up the issue with the MOAI, MOH, and MONREA to develop a plan to secure the necessary funding.	X	X				

Action Plan Matrix 5. Crop Protection Products (CPPs)

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
2. Substantial obsolete and dangerous stocks. (Continued)	(c) Establishing a system of regular inventory of stocks.	Inspector to undertake routine checks.	X	X	X	X	X	X
		PSAM to develop a self-monitoring mechanism.	X	X	X	X	X	X
	(d) Building an adequate pesticide storage facility for government migratory and perennial pest products in each region.	Donor can help.		X				
	(e) Establishing a mechanism for safe and sound disposal of future obsolete stocks.	(e.1) MOAI to provide for ways of disposing of obsolete products in the pesticide regulatory framework.	X	X				
		(e.2) Manufacturer or supplier to incur the full cost of disposing of products (both for government and nongovernment stocks).	X	X	X	X	X	X
	(f) Establishing government guidelines to avoid accumulation of obsolete stocks in the public sector.	MOAI to develop guidelines outlining responsibilities of government, donors, and dealers.	X	X				
	(g) Offering stock management training programs to dealers.	MOAI's short-term training project.	X	X	X	X	X	X
		PSAM training program.	X	X	X	X	X	X
3. Limited products and use knowledge by extension agents.	Designing and running a training program for extension agents.	Project training program.	X	X	X	X	X	X
		PSAM to continue its safe use training program.	X	X	X	X	X	X
		Revamp IPM Task Force to examine possible contribution (*e.g.*, technical and financial support to the Natural Resource College for safe pesticide use modules for extension agents). Involve MOH and MONREA.	X					

Action Plan Matrix 5. Crop Protection Products (CPPs)

Issues/Constraints	Actions Recommended	Stakeholder Responsibility	Year Implementation (0=2000)					
			0	1	2	3	4	5
4. Limited products and use knowledge by farmers and general public.	Educating farmers and the public on pesticides and the safe use of pesticides.	Public sector/traders/PSAM partnership in designing and running demonstration programs.	X	X	X	X	X	X
		Agricultural Communication Branch to develop multi-media strategies to sensitize the public on pesticides and their safe use.	X	X	X	X	X	X
5. Lack of dealers and private retail pesticide traders.	Running dealer development programs.	Project training programs for dealers, bank staff, and public sector staff.	X	X	X	X	X	X
6. Market uncertainties and distortions.	(6a) Developing a market information system.	Donor, MOAI, and Project to work to strengthen the MIS unit of the MOAI.	X	X	X	X	X	X
	(6b) Limiting KR-II pesticides to product use for control of perennial and migratory pests.	MOAI, MOF, and JICA to work on agreement.	X					
7. Regional harmonization	Continuing negotiations for a regional harmonization of the testing and registration of pesticides and risk-based duties.	MOAI and PSAM to continue to be involved.	X	X	X	X	X	X
8. Public health and environmental risks	(8a) Intensifying research and extension on bio-control and IPM (crop rotations, pheromones, biological control, BTs, biopesticides).	Research and extension budgets		X	X	X	X	X
	(8b) Developing easier, cheaper, and low-risk regulations for biopesticides with appropriate risk tests.	PCB, MOAI, and industry.		X				
	(8c) Intensifying residue testing on food products.	Malawi Bureau of Standards.	X	X	X	X	X	X
	(8d) Developing user-friendly, cheaper, small, and low-risk packages of CPPs	Industry and MOAI.	X	X	X	X	X	X
	(8e) Strengthening the capacity of the health services to deal with cases of pesticides poisoning.	MOH, MOAI, industry.	X	X				

out human capital and finance, market information is unlikely to be of much use. The sequencing of various activities under each domain (policy, finance, seed, fertilizers, and CPPs) is included in the *Action Plan* matrices presented earlier.

IV.2. Creating a Task Force

A Task Force (TF) consisting of various stakeholders should be created to develop implementation arrangements for the *Action Plan*. Various stakeholders should be represented in the TF as follows:

- Donor Representatives 2
- Public Sector Representatives 2
- Private Sector Representatives 3

The Malawi Agricultural Sector Investment Programme (MASIP) should make the necessary arrangements to coordinate TF's activities, and TF should be reporting to the donors' group about the progress made on the implementation of the *Action Plan*. The existing donor committees on agriculture and food security should invite stakeholders from the private sector to their meetings when the TF is reporting about the progress made. The TF should also have an easy access to the Principal Secretary (PS) of Agriculture, as shown in Figure 5.

It is recommended that the TF should consider inviting technical experts for designing a project to implement the core activities related to market development (policy reforms, human capital formation, and financial services). For other easily separable activities, such as the disposal of outdated pesticides, the TF may justifiably consider designing separate subproject activities. For such activities, the TF should appoint technical committees or use existing ongoing efforts (if effective) to advise it about the proper implementation approach. The TF may consider creating a small secretariat for assistance in designing and coordinating projects or subproject activities.

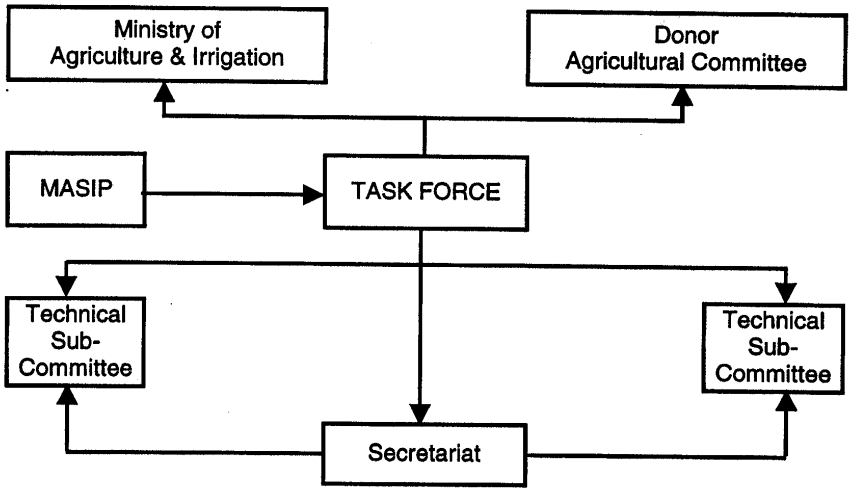


Figure 5. *Action Plan* Implementation Arrangements.

IV.3. Resource Requirements

Malawi will need a 5-year program to initiate the process of developing efficient and well-functioning agricultural input markets. Preliminary estimates of the resources needed to implement various components of the Action Plan are presented in Table 5. While designing the project or subproject activities, the TF should use technical experts to concretize these resource requirements.

Because of the synergistic effects of various activities in a holistic approach, most of the activities should be implemented through a comprehensive project entity. However, if that is not feasible, at least activities related to policy reform, human capacity building, and financial services (creation of capital funds) should be implemented as a single project.

IV.4. Government Commitment and Policy Consistency

The most important requirement for the successful implementation of the actions recommended in this *Action Plan* is government commitment to the proposed initiatives and its ability to implement them. Key indicators of government commitment are the supportiveness (pro-market), clarity, degree of stability, and consistency of policies affecting agricultural input procurement and marketing, and of a reliability, transparency, and cost-effective legal system that instills confidence and credibility. Government ability to implement the recommended actions depends on its financial and technical capacities both in designing the specifics of the recommended actions and in monitoring their implementation and impact. To

Table 5. Estimated Resource Requirements for Implementing Various Components of the *Action Plan*: 5-Year Program[a]

Activity/Component	Cost (US $'000)
A. Project Operating Costs	
Policy Reform Activities (marketization of various programs)	2,200
Human Capital Formation (Training, study tours, enterprise development, and association building activities)	5,300
Market Information System (MIS)	600
Strengthening of Regulatory Frameworks	1,100
Technology Transfer Activities	1,250
Policy, Agronomic, and Environmental Studies	935
Seed Sector Development Activities	1,130
Total Project Operating Costs	**12,515**
B. Capital Funds Costs	
Agricultural Input Import Fund (foreign exchange)	15,000
Agricultural Input Business Development Fund (Local Currency MK 100 million @ MK 47 = US $)	2,128

a. Costs related to the establishment of Pesticides Control Board (PCB) and the Safe Disposal of Outdated Pesticides are not included.

be successful, a close partnership between the government, the private operators, and the donor community is essential.

IV.5. International Support

The degree of international support of domestic liberalization and market development initiatives is critical to government commitment to the reforms. This is particularly true because several required investments are costly and long term in nature (5-10 years). This is the case, for example, for the development of the road infrastructure, emergency disposal of large obsolete pesticide stocks, or long-term, off-the-job training. Given government limited financial resources and technical expertise, donor support is critical. In particular, it is essential that donors' activities be coordinated, supportive (pro-market), and consistent.

References

1. Chakravarti, A. 1997. *Input and Commodity Marketing in Malawi*, World Bank, Malawi.

2. Daudi, A. T., D. W. Makina, and G. F. Chingóma. 1999. Report on the Survey of Obsolete Pesticide Stocks in Malawi.

3. Jaffee, S. 1997. *Malawi Agriculture: Recent Structural Transformation and Future Prospects*, World Bank, Washington, DC.

4. Mason, E. S., and R. E. Asher. 1973. *The World Bank Since Bretton Woods*, The Brookings Institution, Washington, DC, p. 473.

5. World Bank. 1989. *Sub-Sahara Africa From Crisis to Sustainable Growth*, World Bank, Washington, DC.

Paper Series IFDC—P-25
December 2002
1M

IFDC
P.O. Box 2040
Muscle Shoals, Alabama 35662 (U.S.A.)

ISBN 0-88090-131-4